

APPOINTMENTS

- Scientist III**, Department of Entomology, University of Wisconsin, Madison, Nov 2021 – present.
Assistant Scientist, Department of Entomology, University of Wisconsin, Madison, Dec 2017 – Nov 2021.
Post-doctoral Research Associate, Department of Entomology, University of Wisconsin, Madison, Aug 2015 – Nov 2017.
Post-doctoral Research Associate, Department of Entomology, University of Wisconsin, Madison and USDA-ARS Cranberry Entomology Lab, Jan 2014 – July 2015.

EDUCATION

- PhD**, Zoology, University of Wisconsin, Madison. Thesis title: “The effect of bees, landscape, and local management on cranberry yield.” December 2013. Advisor: Claudio Gratton
MS, Entomology and Agroecology, University of Wisconsin, Madison. Thesis title: “Conservation of non-crop habitats and ecosystem services in Wisconsin potatoes.” May 2009. Advisor: Claudio Gratton.
BA, Environmental Studies, with Honors, Bates College, Lewiston, Maine. Thesis title: “Impact of patch retention on ground beetle communities in western Maine.” May 2003. Advisor: Curtis Bohlen

OTHER COURSEWORK

- Postdoctoral Training Course in Scientific Leadership, University of Wisconsin, Madison, 2016-2017.
American Museum of Natural History Bee Course, Southwest Research Station, Portal, AZ, August 2009.

PUBLICATIONS

- McMinn-Sauder, H.B.G., Colin, T., **Gaines Day, H.R.**, Quinlan, G., Smart, A., Meikle, W.G., Johnson, R.M., Sponsler, D.B. (2024) Next-generation colony weight monitoring: a review and prospectus. *Apidologie*, doi: 10.1007/s13592-023-01050-8
- Hemberger, J., Bernauer, O.M., **Gaines-Day, H.R.**, GRATTON, C., 2023. Landscape-scale floral resource discontinuity decreases bumble bee occurrence and alters community composition. **Ecological Applications**. e2907. <https://doi.org/10.1002/eap.2907>
- Quinlan, G.M., D. Sponsler, **H.R. Gaines-Day**, H.B.G. McMinn-Sauder, C.R.V. Otto, A.H. Smart, T. Colin, C. Gratton, R. Isaacs, R. Johnson, M.O. Milbrath, C.M. Grozinger. (2022) Grassy-herbaceous land moderates regional climate effects on honey bee colonies in the Northcentral US. *Environmental Research Letters* 17 (6), <https://doi.org/10.1088/1748-9326/ac7063>.
- Guzman, A., **H.R. Gaines-Day**, A.N. Lois, S.A. Steffan, J. Brunet, J. Zalapa, C. Guédot (2019) Surrounding landscape and spatial arrangement of honey bee hives affect pollen foraging and yield in cranberry. *Agriculture, Ecosystems & Environment*, <https://doi.org/10.1016/j.agee.2019.106624>.
- Steffan, S.A., P.S. Dharampal, B.N. Danforth, **H.R. Gaines-Day**, Y. Takizawa, Y. Chikaraishi (2019) Omnivory in bees: Elevated trophic positions among all major bee families. *The American Naturalist* **194**, DOI: 10.1086/704281.

- Mallinger, R. E., **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**:e0189268.
- Gaines-Day, H.R.** and C. Gratton (2017) Understanding Barriers to Participation in Cost-Share Programs For Pollinator Conservation by Wisconsin (USA) Cranberry Growers. *Insects* **8** (3): 79-91, doi:10.3390/insects8030079
- Lichtenberg, EM, CM Kennedy, C Kremen, P Batáry, F Berendse, R Bommarco, NA Bosque-Pérez, LG Carvalheiro, WE Snyder, NM Williams, R Winfree, BK Klatt, S Åström, F Benjamin, C Brittain, R Chaplin-Kramer, Y Clough, B Danforth, T Diekötter, SD Eigenbrode, J Ekroos, E Elle, BM Freitas, Y Fukuda, **HR Gaines-Day**, and 39 others (2017) A global synthesis of the effects of diversified farming systems on arthropod diversity within fields and across agricultural landscapes. *Global Change Biology*, DOI: 10.1111/gcb.13714
- Gaines-Day, H.R.**, C. Gratton (2016) Crop yield is correlated with honey bee hive density but not in high woodland landscapes. *Agriculture, Ecosystems, and Environment* **218**: 53-57, <https://doi.org/10.1016/j.agee.2015.11.001>
- Steffan, S.A., Y. Chikaraishi, C.R. Currie, H. Horn, **H.R. Gaines-Day**, J.N. Pauli, J.E. Zalapa, N. Ohkouchi (2015) Microbes are trophic analogs of animals. *PNAS* **112** (40): 15119-15124, doi: 10.1073/pnas.1508782112
- Bernauer, O., **H.R. Gaines-Day**, S.A. Steffan (2015) Colonies of bumble bees (*Bombus impatiens*) produce fewer workers, less bee biomass, and have smaller mother queens following fungicide exposure. *Insects* **6** (2): 478-488. DOI: 10.3390/insects6020478
- Gaines-Day, H.R.** and C. Gratton (2015) Biotic and abiotic factors contribute to cranberry pollination. *Journal of Pollination Ecology*
- Werling, B.P, T.L. Dickson, R.I. Isaacs, **H. Gaines**, C. Gratton and 12 others. (2014) Perennial grasslands increase multiple ecosystem services in bioenergy landscapes. *PNAS* **111**: 1652-1657.
- Kennedy, C.M., E. Lonsdorf, M.C. Neel, N.M. Williams, T.H. Ricketts, R. Winfree, R. Bommarco, C. Brittain, A.L. Burley, D. Cariveau, L.G. Carvalheiro, N.P. Chacoff, S.A. Cunningham, B.N. Danforth, J. Dudenhoffer, E. Elle, **H.R. Gaines**, and 24 others (2013) A global quantitative synthesis of local and landscape effects on wild bee pollinators in agroecosystems. *Ecology Letters* **16**: 584-599, doi: 10.1111/ele.12082
- Gaines, H.R.** and C. Gratton. (2010) [Weed] Seed predation increases with ground beetle diversity in a Wisconsin (USA) potato agroecosystem. *Agriculture, Ecosystems & Environment* **137**: 329-336, doi:10.1016/j.agee.2010.03.003
- Winfree, R., N.M. Williams, **H. Gaines**, J.S. Ascher, C. Kremen (2008) Wild bee pollinators provide the majority of crop visitation across land-use gradients in New Jersey and Pennsylvania, USA. *Journal of Applied Ecology* **45**:793-802, doi:10.1111/j.1365-2664.2007.01418.x

GRANTS

2023 American Beekeeping Federation/Foundation for the Preservation of Honey Bees Equipment & Infrastructure Grant, Buzzing about the Wisconsin Idea: Bringing a beekeeping short course back to Wisconsin, PIs: Dr. Hannah Gaines Day and Dr. Claudio Gratton, **\$3,165.40**

USDA NIFA 2022, WiBee 2.0: An innovative app-based citizen science decision support system for crop pollination, Key Personnel: Claudio Gratton, Hannah Gaines Day, Ben Bradford, Russ Groves, **\$749,972**, 2023 - 2026

Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) Specialty Crop Block Grant. PIs: Claudio Gratton and Hannah Gaines Day

- **2023:** Ask the honey bees: how do local and landscape conditions affect pollen quality?, **\$99,435**, 2024-2025
- **2022:** Bees, blossoms, and bad weather: Assessing the impact of weather variability and land-use on pollinators and crops, **\$99,995**, 2023-2024.
- **2021:** Where should I put my honey bees? Exploring variation in pesticide contamination, nutritional quality, and diversity of pollen collected by honey bees in Wisconsin landscapes, **\$99,864**, 2022-2023.
- **2020:** The effect of landscape and climate variability on patterns in honey bee hive health: Leveraging multi-year, state-wide honey bee hive inspection data in Wisconsin, **\$99,137**, 2021-2023.
- **2019:** Assessing the influence of cranberry pollination on honey bee hive health, **\$98,503**, 2020-2022.
- **2018:** Evaluating the impact of pollinator habitat installations on fruit and vegetable pollination and yield, **\$99,165**, 2019-2021.
- **2017:** Assessing the vulnerability of Wisconsin specialty crops to bee declines, **\$99,965**, 2017-2020.
- **2017:** Improving honey bee hive success by understanding effects of local management, foraging habitat, and climate, PIs: Claudio Gratton, Hannah Gaines Day, and Sai Suryanarayanan, **\$99,018**, 2017-2020.
- **2015:** Managing alternative pollinators through understory management in Wisconsin apple orchards, **\$100,000**, 2015-2017.

Wisconsin Honey Producers Association, Research Grant 2019, PI: Hannah Gaines Day, **\$2,500**.

Sustainable Agriculture, Research, and Extension (SARE) Farmer Rancher Grant. Assessing the efficacy of Thymol dispensed in syrup for control of Varroa mites and syrup preservation in honey bee hives, PI: Rick Sallmann, **\$9,000** (awarded but turned down)

Baldwin Wisconsin Idea Endowment Award. Show Me the Bees! Engaging growers with citizen science to improve management of crop pollinators, PIs: Claudio Gratton, Hannah Gaines Day, and Jeremy Hemberger, **\$88,000**, 2018-2021.

North Central Region - Sustainable Agriculture, Research, and Education (NCR-SARE) Graduate Student Grant Program. On-farm conservation of native bees: Understanding the barriers to implementation and assessing viability in Wisconsin cranberry, PI: Hannah R. Gaines, **\$9,970**, 2010 – 2013.

Hatch Grant. Native bees in cranberry agroecosystems: where are they and does it matter? PIs: Claudio Gratton and Hannah Gaines, **\$121,605**, 2014 – 2018.

Hatch Grant. Conservation of Ecosystem Services in a Biofuel Agricultural Landscape, PIs: Claudio Gratton and Hannah Gaines, **\$116,460**, 2009 – 2013.

GROWER PRESENTATIONS (invited)

Dane County Beekeepers Club, “How does the surrounding landscape influence honey bees?”, Madison, WI, May 2023 (~20 people)

Wisconsin Fresh Fruit and Vegetable Conference, “Protecting pollinators while still using insecticides”, Wisconsin Dells, January 2023

Wisconsin Honey Producers Association Western Region Spring Meeting, May 2022, “Honeybee Research Update”, Wilton, WI (~15 people)

Wisconsin Honey Producers Association Southern Region Spring Meeting, “How does the landscape influence honey bee hive success in Wisconsin?”, Fitchburg, WI, February 2020 (~50 people)

Dane County Beekeepers Club, “Honey Bee Research at UW-Madison”, Middleton, WI, February 2020 (~30 people)

Sugar River Beekeepers Club, “UW-Madison Honey Bee Research Update”, New Glarus, WI November 2019 (11 people)

Wisconsin Honey Producers Association Annual Meeting, “UW-Madison Honey Bee Research Update”, Fond Du Lac, WI, November 2019 (~100 people)

Milwaukee Brookfield Beekeepers Club, “Honey Bee Research at UW-Madison”, Waukesha, WI, May 2019 (~75 people)

Racine/Kenosha Beekeepers Club, “Honey Bee Research at UW-Madison”, Kenosha, WI, March 2019 (~40 people)

Wisconsin Honey Producers Association Southern Region Spring Meeting, “Honey Bee Research Projects Here in Wisconsin”, Milton, WI, March 2019 (~40 people)

Ridge and Valley Beekeeper Club, “The influence of surrounding habitat on honey bees”, Gays Mills, WI, February 2019 (~75 people)

Walworth County Beekeepers Club, “The influence of surrounding habitat on honey bee hive success”, Elkhorn, WI, October 2018 (~40 people).

Sugar River Beekeepers Club, “The influence of surrounding habitat on honey bees”, New Glarus, WI, October 2018 (~15 people).

IPM Institute of America TruEarth Grower Meeting, “2014--2017 TruEarth and Wisconsin pollinator summary and observations”, Video Conference, March 2018.

Wisconsin Fresh Fruit and Vegetable Conference, “Managing alternative pollinators through understory management in Wisconsin apple orchards”, Wisconsin Dells, WI, January 2018.

Wisconsin Apple Growers Association Summer Field Day, “Native bees in Wisconsin apple orchards” Stoughton, WI, July 2017.

IPM Institute of America TruEarth Grower Meeting, “Managing alternative pollinators through understory management in Wisconsin apple orchards”, March 2017.

Wisconsin Fresh Fruit and Vegetable Conference, “Managing alternative pollinators through understory management in Wisconsin apple orchards”, Wisconsin Dells, WI, January 2017.

Wisconsin State Cranberry Growers Association Annual Cranberry School, “Do fungicide applications affect bee fidelity to cranberry?” Stevens Point, WI, January 2015.

Wisconsin State Cranberry Growers Association Annual Cranberry School, “Native pollinators in cranberry: An update”, Stevens Point, WI, January 2014.

Midwest Food Processors’ Association Annual Convention, “Bee Issues in Agriculture and Potential Impacts on the Processing Industry”, Milwaukee, WI, December 2013.

Wisconsin Berry Growers Association Field Day, “Pollination and Native Bees”, Bonduel, WI, May 2012.

Wisconsin State Cranberry Growers Association Annual Cranberry School, “Cranberry pollination”, Oral presentation and grower panel, Stevens Point, WI, January 2012.

Xerces Society for Invertebrate Conservation Pollinator Conservation Program, “Native Bees and Wisconsin Cranberries”, Ashland, WI, August 2010.

Wisconsin State Cranberry Growers Association Annual Cranberry School, “Native bees in Wisconsin cranberry”, Stevens Point, WI, January 2010.

Wisconsin Potato and Vegetable Growers Association Annual Meeting, “Influence of non-crop habitat on carabid abundance, diversity, and weed seed predation in potato agroecosystems”, Stevens Point, WI, February 2009.

OUTREACH PRESENTATIONS (invited)

- Sun Prairie City Council Sustainability Committee Meeting, “Results from No Mow May 2023 Pollinators and Citizen Science in Your Backyard”, Virtual, October 2023.
- 1000 Friends of Wisconsin webinar series, “No Mow May 2023: Community Science in your Backyard”, H. Gaines-Day, Cindy Burtley, and Sandy Xiong, June 2023.
<https://www.youtube.com/watch?v=hU-6vA63yCI>
- Pasture and Plenty “The Chef and the Beekeeper”, invited guest speaker, Madison, WI, June 2023.
- Sun Prairie City Council Sustainability Committee Meeting, “No Mow May 2023 Pollinators and Citizen Science in Your Backyard”, Virtual, Sun Prairie City Council Sustainability Committee Meeting, April 2023
- Sun Prairie Now Mow May Initiative, “No Mow May 2023: Pollinators and Citizen Science in Your Backyard”, H. Gaines-Day and G. Pugasek, Sun Prairie Public Library, April 2023
- UW-Madison Beekeeper Seminar, “Research Overview and Introduction to WiBee”, Greenhouse Learning Community, Madison, WI, May 2022.
- Honey Bee Health Coalition, “Do Managed Bees Have Negative Effects on Wild Bees?” Phone conference, September 2018.
- Friends of Cherokee Marsh, “What’s the buzz: Wisconsin’s bees and how you can help”, Madison, WI, January 2015.
- Oakwood Village Retirement Community, “All About Bees: Native and Managed Pollinators,” Madison, WI, August 2014.
- Aldo Leopold Audobon Society, “The Buzz on Bees”, Stevens Point, WI, May 2014.
- Friends of the Lakeshore Nature Preserve, “The Buzz with Bees: Native and Managed Pollinators”, University of Wisconsin Arboretum, April 2014.
- Wisconsin Academy of Arts and Sciences, “[The Bee Crisis and Wisconsin: What's the Role of Native Bees?](#)” Mead Public Library, Sheboygan, WI, October 2013.
- Native by Design: Gardening for a Sustainable Future, “Attracting Native Pollinators”, University of Wisconsin Arboretum, September 2013.
- Iowa County Youth Conservation Field Day, “Pollinators”, Dodgeville, WI, September 2012.
- Native by Design: Gardening for a Sustainable Future, “Attracting Native Pollinators”, University of Wisconsin Arboretum, September 2012.
- Chaos and Complex Systems Seminar Series, “Bees: What is all the buzz about?”, University of Wisconsin Department of Physics, September 2011.
- Iowa County Youth Conservation Field Day, “Pollinators”, Dodgeville, WI, September 2011.
- Driftless Dialogue IV Lecture Series, “Bees: Habits and Habitats”, Kickapoo Valley Reserve, LaFarge, WI, September 2010.
- Native by Design: “How-To” Conference for Gardeners, “How to Attract Native Pollinators”, University of Wisconsin Arboretum, September 2010.
- Master Gardeners of Adams County, “Native Bee Pollinators”, Friendship, WI, May 2010.

SCIENTIFIC PRESENTATIONS (oral, contributed)

- Wisconsin Pollinator Meeting, “How do managed honey bees respond to the landscape?”, UW Arboretum, Madison, WI, April 2023
- Entomological Society of America Annual Meeting, “Evaluating the impact of local floral resource availability on fruit and vegetable pollinators and pollination”, Denver, CO and virtual, November 2021.
- Entomological Society of America Annual Meeting, “Cranberry yield doubles in the presence of bees, regardless of landscape context, crop flower density, or the use of managed honey bees

bees?", virtual, November 2020

Entomological Society of America Annual Meeting, "Which landscapes are best for honey bees?", St. Louis, MO, November 2019.

Entomological Society of America, North Central Branch Meeting, "The effects of understory floral management on bees and fruit set in Wisconsin apple orchards", Madison, WI, March 2018.

Entomological Society of America Annual Meeting, "Do Managed Bees Have Negative Effects on Wild Bees?", Denver, CO, November 2017.

UW-Madison Postdoctoral Association Research Symposium (5-minute talks), "Do Managed Bees Have Negative Effects on Wild Bees?", Madison, WI, September 2017.

Department of Entomology PhD Exit Seminar, "Do bees matter to cranberry? The effect of bees, landscape, and local management on cranberry yield", Madison, WI, November 2013.

Entomological Society of America Annual Meeting, "Bee contribution to cranberry yield varies with local farm management", Austin, TX, November 2013.

Ecological Society of America Annual Meeting, "Biotic and non-biotic factors contribute to cranberry pollination", Minneapolis, MN, August 2013.

Wisconsin Ecology Spring Symposium, "Assessing the pollination requirements of a perennial crop," Madison, WI, April 2013.

Entomological Society of America Annual Meeting, "Assessing the pollination requirements of a perennial crop", Knoxville, TN, November 2012.

North American Cranberry Researcher and Extension Worker Conference, "Response of native bees to landscape structure in the Wisconsin cranberry agroecosystem", Wisconsin Dells, WI, September 2011.

Ecological Society of America Annual Meeting, "Response of native bees to landscape structure in a perennial agroecosystem", Austin, TX, August 2011.

Entomological Society of America Annual Meeting, "Native bees in Wisconsin cranberry across a landscape gradient", Indianapolis, IN, December 2009.

Entomological Society of America Annual Meeting, "Influence of non-crop habitat on carabid abundance, diversity, and weed seed predation in potato agroecosystems" Reno, NV. Nov 2008.

Ecological Society of America Annual Meeting, "Influence of non-crop habitat on weed seed predation within potato crops", Milwaukee, WI, August 2008

SCIENTIFIC PRESENTATIONS (posters, contributed)

International Conference on Pollinator Biology, Health and Policy, "The effect of landscape and climate variability on patterns in honey bee hive health: Leveraging multi-year, state-wide honey bee hive inspection data in Wisconsin (USA)". State College, PA, June 2023.

Entomological Society of America Annual Meeting, "Exploring variation in pesticide contamination, nutritional quality, and diversity of pollen collected by honey bees in Wisconsin landscapes", Virtual, November 2023.

International Pollinator Conference, "Assessing the vulnerability of specialty crops to pollinator decline in Wisconsin (USA)", Davis, CA, July 2019.

Entomological Society of America Annual Meeting, "Understanding the influence of landscape on honey bees in Wisconsin", Vancouver, BC Canada, November 2018.

Ecological Society of America Annual Meeting, "Managing alternative pollinators through understory management in Wisconsin apple orchards", Portland, OR, August 2017.

Ecological Society of America Annual Meeting, "Response of native bees to local farm management and landscape features in a perennial agroecosystem", Portland, OR, August 2012.

Entomological Society of America Annual Meeting, "Response of native bees to landscape composition and configuration in Wisconsin agroecosystems (USA)", San Diego, CA. December 2010.

International Conference on Pollinator Biology, Health and Policy, “Native bees respond to landscape composition and configuration in a cranberry agroecosystem (Wisconsin, USA). State College, PA, July 2010.

Entomological Society of America Annual Meeting, “Conservation of insect diversity and ecosystem services in non-crop habitats in Wisconsin potato agroecosystems. San Diego, CA, Dec 2007.

Mount David Summit, “Impact of Patch Retention on Ground Beetle (Coleoptera: Carabidae) Communities in Western Maine”, Bates College, Lewiston, Maine, May 2003.

WORKING GROUPS

Managed Pollinator Protection Plans (MP3), North Central IPM Center, East Lansing, MI, 2021-present
IPM4Bees Midwest, North Central IPM Center, Ames, IA, 2019 – 2023

COMMUNITY INVOLVEMENT

Thriving Earth Exchange/Sun Prairie, No Mow May 2023

HONORS AND AWARDS:

2nd place, 2013, Entomological Society of America Student Competition, 10-minute Oral Presentation

2nd place, 2010, Entomological Society of America Student Competition, Poster Presentation

1st place, 2009, Entomological Society of America Student Competition, 10-minute Oral Presentation

Honorable Mention, 2008, Ecological Society of America, Agroecology Section Student Presentation Award

Honorable Mention, 2006, NSF Graduate Research Fellowship

ADVISING - UNDERGRADUATE INDEPENDENT RESEARCH

G. van Deelen, summer 2020, thesis student, Tufts University, MS student at MIT

G. Hackinson, fall 2019, UW-Madison, Bio 152 student

L. Dirnberger, winter 2019, UW-Madison, Bio 152 student

A. Vladamundi, 2017, thesis student, Kalamazoo College

A. Guzman, 2015, thesis student, UW-Madison, *PhD student at University of California, Berkeley*

O. Bernauer, 2014-2015, thesis student, UW-Madison, *MS University of Maryland, PhD student at Western Sydney University*

R. Waytes, 2011, thesis student, Kalamazoo College, *MS University of Calgary*

SERVICE

Peer review for numerous journals including: Agriculture Ecosystems and Environment, Agronomy, Apidologie, Journal of Applied Ecology, Ecology Letters, Journal of Insect Conservation, Methods in Ecology and Evolutionary Biology, Weed Research, HortScience, Journal of the Acadian Entomological Society, PeerJ, PLOS ONE, Basic and Applied Ecology, Saudi Journal of Biological Science, Insects, Ecological Entomology, Environmental Entomology, Land Use Policy, Entomologia Experimentalis et Applicata, and Renewable Agriculture and Food Systems