

Samantha A. Alger, PhD

Assistant Research Professor



Education

PhD, Biology (Ecology and Evolution), University of Vermont, 2018

BS, General Business, University of Rhode Island, Kingston, RI, 2009

BA, Biology, University of Rhode Island, Kingston, RI 2009

Selected Experience

Assistant Research Professor, Department of Agriculture, Landscape, and Environment, University of Vermont, Burlington, VT, 9/2019-Present

- Managing the Vermont Bee Lab: a research group that investigates the stressors to wild and native bee populations, works to improve resources for pest and disease monitoring, diagnosis, and education for Vermont beekeepers.
- Instruct UVM courses “Bees and Beekeeping”, “Hands-on Beekeeping”, and “Introduction to Beekeeping”.

Owner, Borealis, LLC, 11/2022-Present

- Providing scientific expertise and consulting services for pollinator research and conservation programming for non-profit, charity, and industry clients.

Environmental Scientist/Pollinator Specialist, VHB, South Burlington, VT, 3/2019-10/2022

- Managed projects related to pollinator research and conservation including bee and butterfly surveys, navigating Monarch CCAA enrollment for utility and transportation sectors, and developing and trialing of pollinator seed mixes.
- Designed and conducted surveys to document presence/absence of wildlife and habitat including Rusty-patched bumble bees, grassland bird species, Karner blue butterflies and frosted elfin, rare and threatened bat species, Bicknell’s thrush.
- Co-authored and provided technical review of natural resource reports for state and federal agencies.
- Served as task manager for solar development clients navigating the Section 248 review process.

NSF Graduate Research Fellow, University of Vermont, Burlington, VT, 9/2013-9/2018

- Designed, developed, and conducted novel scientific studies and research programs to fill knowledge gaps about pollinator conservation, the spillover of emerging infectious disease among bees, and effects of pesticide exposure on bee physiology and virus replication.
- Led community outreach initiatives to improve pollinator health in Vermont, including workshops and presentations to beekeeping communities (over 200 beekeepers).
- Developed open-source tools and technology to aid state apiary inspection programs to control spread of bee diseases.

Publications

Miller MS, Boncristiani D, Evans J, Burnham PA, Barrett C, Wagoner K, **Alger S.** (2026) Innate defense mechanisms against *Nosema ceranae* in hygienic honey bee (*Apis mellifera*) colonies. PLoS One 21(3): e0339548.
<https://doi.org/10.1371/journal.pone.0339548>, Open Access Journal.

- Alger, S. A.**, Miller, M. S., Burnham, P. A., & Munkres, A. (2025). Vermont 2024–2025 Colony Loss Report. Zenodo. <https://doi.org/10.5281/zenodo.17700489>
- Alger, S.**, Burnham, P., Miller, M., Amiri, E & Wagoner, K. (2025). Unhealthy brood odor scores predict pathogen loads of several important honey bee diseases. *Frontiers in Bee Science*. 3. 10.3389/frbee.2025.1509871.
- Alger, SA**; Miller, MS; Burnham, PA; Wagoner, K; Palmer, M; Collins, A; Munkres, A; Rath, J ; Braman, B ; Peck, D. 2024. Using the Unhealthy Brood Odor (UBO) assay, a novel hygiene-eliciting assay, as a selection tool in bee breeding programs. American Bee Research Conference Proceedings. Bee Culture.
- Miller, MS ; **Alger, S** ; Borch, ; Burnham, PA; Lagasse, H ; Barrett, C ; Patel, N, 2024. Evidence revealing interactions between honey bees and non-flowering plants. American Bee Research Conference Proceedings. Bee Culture.
- Burnham, PA; **Alger, SA**. 2024. Modeling floral diversity suggests a dilution effect for RNA viruses in transmission between honeybees and bumblebees. American Bee Research Conference Proceedings. Bee Culture.
- S. Alger**, D. Snyder, J. Disorda, R. Scott; 2023. Joining the Monarch Candidate Conservation Agreement with Assurance: A Case Study with Vermont Electric Power Company. 13th International Symposium on Environmental Concerns in Rights-of-Way Proceedings.
- Lurie, C., **Alger, S.**, LePore, S., McCandless, C., National Academies of Sciences, Engineering, and Medicine. 2022. Considerations for Establishing and Maintaining Successful Pollinator Programs on Airports. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26680>.
- Kinnebrew, E., Neher, D.A., Ricketts, T.H., Wallin, K.F., Darby, H., Ziegler, S.E., **Alger, S.A.**, Galford, G.L., 2021. Cultivated milkweed hosts high diversity of surface-active and soil dwelling arthropods in a New England case study. *Agriculture, Ecosystems & Environment*.
- P. Alexander Burnham, **Alger, S.A.**, Case, B., Boncristiani, H., Herbert-Dufresne, L., Brody, A.K.; 2021. Flowers as dirty doorknobs: Deformed wing virus transmitted between *Apis mellifera* and *Bombus impatiens* through shared flowers. *Journal of Applied Ecology*.
- Alger, S.A.**, Burnham, P.A., Brody, A.K., 2019. Flowers as viral hot spots: Honey bees (*Apis mellifera*) unevenly deposit viruses across plant species, *PLOS ONE*.
- Alger, S.A.**, Burnham, P.A., Boncristiani, H.F., Brody, A.K., 2019. RNA virus spillover from managed honey bees (*Apis mellifera*) to wild bumble bees (*Bombus* spp.). *PLOS ONE*.
- Alger, S.A.**, Burnham, P.A., 2019. Commercially grown milkweed as habitat and forage for monarch butterflies and other pollinators, 2018 Milkweed Production Trials-Combined Report, University of Vermont Extension Northwest Crops and Soils Program.
- Alger, S.A.**, Burnham, P.A., Lamas, Z.S, Brody, A.K., Richardson, L.R.; 2018. Homesick: Impacts of migratory beekeeping on honey bee pests, pathogens, and colony size. *PeerJ*.
- Alger, S.A.**, Burnham, P.A., Report of Vermont’s National Honey Bee Survey (APHIS USDA), (2017). Pollinator Protection Committee Report to the VT Legislature as required by Act 83 of 2016 Session.

- Burnham P.A., **Alger, S.A.**; Lamas, Z.S., 2018. RNA viruses and Varroa mites: Temporal variation in honeybee pathogens influences patterns of coinfection. American Beekeeping Federation Conference & Tradeshow 2018 Proceedings.
- Perrotti, L. & **Alger, S.** 2010. American burying beetle (Silphidae: *Nicrophorus americanus*) survey on Naushon Island, Massachusetts. Invertebrates in Education and Conservation: Sonoran Arthropod Studies Institute Conference Proceedings.
- Alger, S.** 2009. *Eciton burchellii*: polymorphism of submajor caste and foraging efficiency. Invertebrates in Captivity: Sonoran Arthropod Studies Institute Conference Proceedings.

Manuscripts

- Miller, MS., Burnham, PA; **Alger, SA** Behavioral dynamics in hygienic honey bee (*Apis mellifera*) colonies affect the fate of Nosema-infected nestmates. **in prep.**
- Alger, SA**; Miller, MS; Burnham, PA; Wagoner, K; Palmer, M; Collins, A; Munkres, A; Rath, J ; Braman, B ; Peck, D. 2024. Using the Unhealthy Brood Odor (UBO) assay, a novel hygiene-eliciting assay, as a selection tool in bee breeding programs, **in prep.**
- Burnham, P.A., **S.A. Alger**, A.K. Brody, Gotelli, N., Seasonal variation influences coinfection and disease transmission dynamics in bumblebee diseases. Ecology, **in prep.**
- Burnham, P.A., **Alger, S.A.**, Richardson, L., Sleeping Beauty: An examination of the effects of hibernation on diseases of the Common Eastern Bumblebee, *Bombus impatiens*, **in prep.**
- Alger, S.A.**, Burnham P.A., Miller, M.S., McArt, S., Neonicotinoid residues in honeybee-collected pollen linked to presence of row crops and seed planting events, **in prep.**
- Miller, M. **S.**, **Alger, S.**, Borch, B., Burnham, P.A., Lagasse, H., Barrett, C., Patel, N. Evidence revealing interactions between honey bees (*Apis mellifera*) and non-flowering plants. **In prep.**
- Miller, M. S., Borch, B., Burnham, P.A., Lagasse, H., Barrett, C., Patel, N., **Alger, S.** Important seasonal honey bee (*Apis mellifera*) forage sources in the Northeast. **In prep.**

Workshops and Events

- Women in Beekeeping:** Organized workshops and field days throughout the state, elevating the voices of women beekeepers. The workshop series included:
- In-field Varroa Monitoring, South Burlington VT, August 2025 (~25 in attendance)
 - Funding Opportunities for beekeepers panel discussion, November 2025 (~20 in attendance)
 - Equipment Building, January 2026 (~ 14 in attendance)
 - Business of Beekeeping January 2025 (~15 in attendance)
- Native Bee Identification Workshop**, University of Vermont, October 2025 (~20 in attendance)
- Vermont Pollinator Workshop Group Annual Meetings**, University of Vermont, 2023, 2024, 2025. Organized, hosted, and led annual meetings of VPWG organizations. Meetings include lightning talks and breakout groups. (2025: 54 attendees)

Pest and Pathogen Workshops for beekeepers: Developed and coordinated workshop to train beekeepers to identify and quantify honey bee pests and pathogens as well as learn basic honey bee anatomy under microscopes.

- VBA, Hinesburgh, VT, January 2024, 20 attendees
- Windham Co. beekeepers, Newfane, VT, April 2024, 15 attendees
- Addison Co. beekeepers, Middlebury VT, April 2024, 10 attendees
- VBA, Hinesburgh, VT, February 2025, 20 attendees

Hygienic Behavior Workshops for beekeepers: Developed and coordinated workshops to train bee producers to use novel methods of identifying hygienic behavior for bee breeding. Summer 2024, Pawlet and Highgate (20 attendees)

Pollinator Celebration Day 2025 Assisted in the organization and programming for Pollinator Celebration Day, held at Shelburne Farms, Activities included three keynote speakers, a raffle, three workshops, and a “pollinator plaza” that hosted 20 VPWG participating organizations including plant nurseries, pollinator conservation organizations, and local artists May 2025, (~175 in attendance).

Pollinator Celebration Day 2024, Organized, led and hosted event at UVM horticulture farm for public. Activities included keynote talks, raffle, native pollinator plant sale. June 2024 (70 in attendance)

Vermont Pollinator Working Group Annual Meetings (2023-2025): Organized, led, and hosted this event at UVM. Activities include lightning talks highlighting current projects and emerging priorities and breakout sessions. (54 attendees in 2025)

Teaching and Mentoring Experience

UVM Go Sustainability Leader, Summer 2025

Adjunct Lecturer, University of Vermont, Burlington, VT, 2019-Present

- PSS 196: Bees and Beekeeping, Springs 2020, 2021
- PSS 195: Introduction to Beekeeping, Summers 2019-2025
- PSS 195: Hands on Beekeeping, Summers 2021-2025

OLLI Instructor, September 2024, “Vermont Bees and their Threats”

Honor’s Thesis Advisor. 2020. Teighan Shore: Honor’s Thesis Project: “Characterization of Monarch Butterfly (*Danaus plexippus*) and Milkweed Pest Populations in Milkweed Grown at the Commercial Scale”

Undergraduate Research Projects:

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- Ash McClintock, "Field and Lab Applications of Thermochemical Heating Pack in *Varroa* Mite Treatment" 2025-2026
- M. Sydney Miller, "Evaluating interactions between honey bees and non-flowering plants" 2022-2023
- Brianna Borch, "Identifying key pollen and nectar resources for Vermont honey bees". 2021-2022
- Colin McKay, "Developing a pipeline for pesticide residue data". 2022-2023

Graduate Teaching Assistant, University of Vermont, Burlington, VT, 9/2013-8/2015
Prepared and instructed labs for three undergraduate biology courses: Ecology and Evolution, Biology I and II.

Invited Guest Lecturer, University of Vermont, Burlington VT
Ecology and Evolution (BCOR 102): "Virus Ecology in Bumble Bees and Evidence for Disease Spillover", October 2018

Invited Guest Lecturer, University of Vermont, Burlington VT

Environmental Science (ENSC095), "Bee-Plant-Pathogen Interactions", March 2017

EcoWorker, Ocean View Foundation, Block Island, RI, 5/2013-8/2013

Instructed environmental public education programs. Independently developed and delivered a weekly 'Native Pollinator' program, including citizen science bee survey program.

Environmental Educator, Audubon Society of Rhode Island, Bristol, RI, 1/2013-5/2013
Instructed 'Urban Naturalist' after school program in Providence middle schools to increase environmental literacy for inner city youth

Legislative Service and Expert Testimony

Provided expert testimony on Massachusetts Bill H.1041/S.587: An Act to protect pollinators and public health, October 2025, Massachusetts Joint Committee on Environment and Natural Resources

Provided expert testimony on Bill H.706: An Act relating to the banning the use of neonicotinoid pesticides, January 2024, Vermont Senate Committee on Agriculture

Provided education for Vermont House Agriculture and Forestry Committee on pollinator trends and pesticide monitoring efforts, April 2024

Provided expert testimony on Bill H.626: An act related to the sale, use, or application of neonicotinoid pesticides, February 2022, Vermont House Agriculture and Forestry Committee.

Provided expert testimony on Bill H.205: An act relating to the regulation of neonicotinoid pesticides; April, Vermont Senate Committee on Agriculture.

Provided expert testimony on Bill H.205: An act relating to the regulation of neonicotinoid pesticides; February, Vermont House Committee on Agriculture.

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Provided expert testimony on Bill H.236: Bill proposes to ban the use, sale, or application of neonicotinoid pesticides; January 2016, Vermont House Committee on Agriculture.

Provided expert testimony on Bill H.539: Bill proposes to establish a Pollinator Protection Committee January 2016, Vermont Senate Committee on Agriculture,

Vermont Pollinator Protection Committee meeting, Invited speaker, "Results from National Honey Bee Survey and Bumble bee virus survey," October 2016, Vermont Statehouse.

Peer Review Service

Invited reviewer of manuscripts for academic journals: Ecological Applications, Ecology, Nature Scientific Reports

Invited reviewer of grant proposals for the National Fellowship Committee for Graduate Women in Science

Invited reviewer for Saint Louis Zoo Field Research for Conservation Grant (FRC)

Invited Speaking Engagements

February 2025: "UBeeO as a Selection Tool in VT Bee Breeding Programs", Sustainable Beekeepers Guild of Michigan 4th Annual Virtual Winter Conference, Keynote talk, Virtual

February 2025: "UBeeO as a Selection Tool in VT Bee Breeding Programs", Nova Scotia Beekeepers Association Banquet & Annual Meeting, Miller on behalf of VBL, Keynote talk, Bible Hill, Nova Scotia, Canada

January 2025: "VT Bee Health" Pollinator Pathway of Addison County, Virtual.

January 2025: "HapBeeHour Monthly Panel Session", Great Plains Master Beekeepers Program, Virtual.

July 2024: "Vermont Bee Lab Updates" Vermont Beekeepers Association Summer Meeting, Saint Albans, VT

January 2024: "Vermont Pesticide Monitoring" Vermont Beekeepers Association Winter Meeting. Hinesburg, VT

November 2023: "Protect our Pollinators: Threats Pollinators Face and What We Can Do To Help" Protect Our Pollinators VT: Protecting our Pollinators: a Lakeside Chat with Charlie Nardozzi and Samantha Alger. Burlington VT.

October 2022: "RNA Virus Spillover in Wild and Managed Bees" Rhode Island Natural History Survey Bee Symposium. Kingston, RI.

September 2022: "Identifying Key Pollen and Nectar Resources for Vermont Honey Bees". Vermont Beekeepers Association Meeting, Brandon, Vermont

October 2021: "RNA virus spillover from honey bees to wild bumble bees through flowers". Entomological Society of America Conference, Denver, Colorado.

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May 2019: "Are viruses spilling over from honey bees to wild bumble bees through flowers?", Southern Adirondack Beekeepers Association, Saratoga Springs, New York

March 2019: "Threats to Pollinators and Efforts to Improve Pollinator Health," UVM Extension Northwest Crops & Soils Program and Northern Grain Growers Association Grain Growers Conference, Essex, VT

January 2019: "On the Status and Challenges of State Apiary Inspection Programs," American Honey Producers Association, Tempe, AZ

January 2019: "Tools to Improve Apiary Inspection Programs," Apiary Inspectors of America, Tempe, AZ

November 2018: "Virus Ecology in Bumble Bees and Evidence for Disease Spillover," Vermont Society of Engineers, Waterbury, VT

October 2018: "Shared Honey Bee and Bumble Bee Viruses: Demonstrating the Floral Transmission Route," North American Pollinator Protection Campaign Conference, Washington DC

July 2018: "An Analysis of Vermont Beekeepers' Practices, Colony Health and Loss," Addison County Beekeepers Association Club Meeting, Middlebury, VT

June 2018: "An Analysis of Vermont Beekeepers' Practices, Colony Health and Loss," Vermont Beekeepers Association Summer Meeting, Swanton, VT

April 2018: "RNA Viruses in Bumble Bees and the Role of Flowers in Virus Transmission," Plant Soil Science Seminar, University of Vermont, Burlington VT

January 2018: "National Honey Bee Survey Update," Vermont Beekeepers Association Winter Meeting, Essex, VT

January 2018: "Bee Virus Ecology," keynote speaker, Addison County Beekeepers Association Club Meeting, Middlebury, VT

July 2017: "Homesick- The Role of Migratory Beekeeping on Disease Spread," Vermont Beekeepers Association Summer Meeting, Middlebury, VT

January 2017: "Bee Virus Ecology," Vermont Beekeepers Association Winter Meeting, Essex, VT

January 2017: "Ecology of Bee Viruses," keynote speaker, Southern Adirondack Beekeepers Association, Saratoga, VT

September 2016: "RNA Viruses in Vermont Bumble Bees," Garden Club of America Bee Involved Business Meeting, Lenox, Massachusetts

June 2016: "Bee Pathogen Workshop," Hands-on workshop for beekeepers to identify and quantify honey bee pests using laboratory methods, Bennington Beekeeping Club meeting, Bennington, Vermont.

January 2016: "Vermont's National Honey Bee Survey Results", Bennington Beekeeping Club meeting, Bennington, Vermont

Participating Speaking Engagements

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January 2024, "Using the Unhealthy Brood Odor (UBeeO) assay, a novel hygiene-eliciting assay, as a selection tool in bee breeding programs," American Bee Research Conference, New Orleans, Louisiana

September 2023 "Using the Unhealthy Brood Odor (UBeeO) assay, a novel hygiene-eliciting assay, as a selection tool in bee breeding programs," Apimondia, Santiago, Chile

September 2019 "RNA virus spillover from honey bees to wild bumble bees," Apimondia, Montreal, Canada

January 2019: "Spillover of RNA Viruses from Managed Honey Bees to Wild Bumble Bees," American Bee Research Conference, Tempe, AZ

April 2018: "Evidence for RNA Virus Spillover from Managed Honeybees to Wild Bumble Bees," The Northeast Natural History Conference, Burlington VT

March 2018: "Homesick- The Role of Migratory Beekeeping on Disease Spread," BioLunch Presentation, University of Vermont, Department of Biology, Burlington, VT

July 2016: "RNA Viruses in Vermont Bumble Bees," Poster Presentation at the International Pollinator Conference, Penn State University.

April 2016: "RNA Viruses in Vermont Bumble Bees", Bumble Bee Working Group Meeting, University of Sussex, UK

February 2016: "'Honey Bee Viruses' in Vermont's Bumble Bees'" BioLunch Presentation, University of Vermont, Department of Biology

January 2016: "Bee Health in Vermont", Annual Vermont Grazing and Livestock Conference, Fairlee Vermont

January 2016: "Vermont's National Honey Bee Survey Results", Vermont Beekeeping Association, VT Farm Show, Essex, Vermont

January 2015: "RNA viruses in Bumble bees" EEEB Presentation, University of Vermont Departments of Ecology, Evolution, and Environmental Biology.

April 2015: "Prevalence, transmission, and effect of RNA viruses on Bumble bees" BioLunch Presentation, University of Vermont Department of Biology

April 2014: "RNA viruses in Vermont's Bumble bees" EcoLunch Presentation, University of Vermont Department of Biology.

October 2014: "RNA viruses: prevalence, transmission, and effect on native bumble bees in Vermont" EEEB Presentation, University of Vermont Departments of Ecology, Evolution, and Environmental Biology.

July 2010: "Eciton burchellii: polymorphism of submajor caste and foraging efficiency". Sonoran Arthropod Studies Institute, 2010 Invertebrates in Education and Conservation Conference, Rico Rico, Arizona

Appointments

Samantha A. Alger, PhD

Steering Committee Member, Vermont Pollinator Working Group, 2025-Present

Advisory Board Member, Conservation Law Foundation, 2025-Present

Scientific Advisor, Vermont Beekeepers Association, 2017-Present

Scientific Advisor and Advisory Council Member, One Hive Foundation, 2023- Present

NESARE Bee School Committee, 2021-2022

Immediate Past President, Honey Bee Veterinary Consortium, 2023

President, Honey Bee Veterinary Consortium, 2022

President-Elect, Honey Bee Veterinary Consortium, 2021

Gund Apis Fund Advisory Committee, 2019-2021

Bumble Bee Conservation Task Force; North American Pollinator Protection Campaign, 2018- 2020

Funded Projects and Awards

2025

Gift to the Gund Institute and VT Bee Lab - One Hive Foundation, (PI) \$893,000

VT Women's Fund, "Women in Beekeeping", \$10,000, (PI)

SARE Innovation Grant, "Investigating Impacts of Environmental and Pathogen Priming Factors on a Novel Hygienic Behavior Assay in Honey Bees", \$203,991, (PI)

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (PI)

"Vermont Pollinator Working Group", PI, Gund Apis Award, \$20,000 with \$20,000 matching funds

2024

Bee Lab Gift- One Hive Foundation, \$150,000

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (PI)

Specialty Crop Block Grant Sub Award, Establishing a Point of Origin Comparison Database for VT Honey", \$10,992

SARE Farmer Sub Award, Born to Swarm Apiaries, "Assessing the Impact of Thyme Nectar and Pollen on Honeybee Health", \$8,398

SARE Farmer Sub Award, Lemonfair Honey Works, "Testing Hyperthermia as Varroa mite and Virus Control in Honeybee Colonies" \$9,688

2023

UVM Gund Apis Fund, Vermont Pollinator Working Group, \$20,000 (Principal Investigator)

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (Principal Investigator)

Bee Lab Gift- One Hive Foundation, \$150,000

Bee Lab Gift- anonymous donor, \$40,000

2022

Specialty Crop Block Grant, Supporting Bee Producers in Developing Disease & Pest Resistant Bee Stock, \$49,345 (Principal Investigator)

Food Systems Research Center Sustainability Metrics Planning Grant, Pollinators and pollinator-dependent crops- key to measuring food systems sustainability, \$49,940 (Co-PI)

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (Principal Investigator)

2021

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (Principal Investigator)

2020

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (Principal Investigator)

SARE Partnership Grant, Improving NE Bee Stock, \$30,000 (Principal Investigator)

2019

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (Principal Investigator)

UVM Bee Diagnostic Lab: Protecting Vermont's honey and pollination services through pest and disease monitoring, \$52,000, (Principal Investigator)

2018

Developing milkweed as a commercial crop to enhance farm viability and biological diversity, Gund Catalyst Award, \$40,000, (key personnel)

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (Principal Investigator)

Shared honey bee and bumble bee viruses: Demonstrating the floral transmission route, North American Pollinator Protection Campaign, \$9,980, (Co-PI)

2017

National Honey Bee Survey in Vermont, USDA-APHIS, \$13,800, (PI)

American Beekeeping Federation Conference Travel Grant, VT beekeepers, \$1,300, (PI)

Switzer Environmental Fellowship, Robert and Patricia Switzer Foundation, \$15,000, (PI)

2016

National Honey Bee Survey in Vermont, USDA-APHIS, \$12,000 (PI)

Homesick: effects of migratory beekeeping on honey bee disease, Experiment.com, \$5,970, (PI)

Travel grant for USDA lab, UVM College of Arts and Sciences, \$300, (PI)

Managing locally sourced native bees as alternative pollinators for Vermont specialty crops, USDA Specialty Crop Block Grant, \$61,455, (key personnel)

2015

National Honey Bee Survey in Vermont, USDA-APHIS, \$12,000, (PI)

Graduate Research Fellowship, National Science Foundation, \$138,000, (PI)

Bee viruses: the evaluation of hedgerow plants in horizontal transmission and pesticide effects on virus replication, Sustainable Agriculture Research and Education, \$14,600, (PI)

2014

Travel grant to USDA Lab, Ronald Suiter Prize, UVM College of Arts and Sciences, \$1,000, (PI)

RNA viruses: prevalence, transmission, and effect on native bumble bees in Vermont, Sophie Danforth Conservation Biology Fund, Roger Williams Park Zoo, \$1,000, (PI)

RNA viruses: prevalence, transmission, and effect on native bumble bees in Vermont, Theodore Roosevelt Memorial Fund, American Museum of Natural History, \$2,500, (PI)

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Assessing floral transmission routes for RNA viruses, Garden Club of America, \$4,000, (PI)

RNA viruses: prevalence, transmission, and effect on native bumble bees in Vermont, Roberto Fabri Fiahlo, Michael D. Upton, \$1,500, (PI)

2013

Travel grant for USDA Lab, Ronald Suiter Prize, UVM College of Arts and Sciences, \$1,000, (PI)

2009

Costa Rica Documentary, Undergraduate Research Grant, University of Rhode Island, \$1000

Costa Rica Documentary, Award for Environmental Research, Joan Smith & Athalie Clark, \$500

Costa Rica Documentary, Memorial Humanities Honors Student Endowment, Eric F. Kumpf, \$500

Grants Written (Pending or Unfunded)

2025

"Honey Bee and Beekeeping Education Program", SARE Education grant, \$201,134, PI, pending

"Certified Vermont Honey: Launching a quality assurance program for Vermont's beekeeping industry", VAAFM Working Lands grant, \$72,090, (UVM subaward \$27,900), unfunded

"PARTNERSHIP: Promoting Honey Bee Colony Health Through Hygiene: Integrating Multi-State Breeding and Applied Research for Pest and Disease Resistance", PD, USDA-NIFA-AFRI, \$899,840.00, pending

"Queen Station II Device for the Vermont Bee Lab", Foundation for the Preservation of Honey Bees, \$5,474.00, PI, unfunded

"Ratios of hygienic drone and worker bees required to achieve honey bee colony Varroa-resistance", Co-PD, Project Apis M, \$60,000 (UVM subaward \$25,500), unfunded

2024

"PARTNERSHIP: Resilience through resistance: An expansion of hygiene-based breeding networks, beekeeper resources, and biological understanding", Co-PD, USDA NIFA AFRI, \$900,000 (UVM subaward \$288,142), unfunded

"Developing and Launching a Vermont Certified Honey Program and Brand", PI, VAAFM Working Lands grant, \$75,000, (UVM subaward \$39,300), unfunded

"Heathy Hives & Habitats: Improving Honey Bee Health & Our Understanding of Bee Hygiene, Pests, Diseases & Nutrition in a Changing Environment", Co-PD, USDA SCRI, \$2,848,000 (UVM subaward: \$868,235), unfunded

"FieldWatch Vermont: Improving communication and promoting stewardship between beekeepers, crop producers, and pesticide applicators" PI, SCBG, \$54,229, unfunded

"Harnessing the power of social bees: a community science approach for pesticide monitoring and data display", PI, Leahy Institute for Rural Partnerships, \$100,000, Unfunded

2023

"Pollinators & Pollinator-Dependent Crops: Key to Measuring Food Systems Sustainability", PI, ARS Food Systems Sustainability Indicators, \$600,000, unfunded

"Harnessing the power of social bees: a community science approach for pesticide monitoring and data display", PI, Leahy Institute for Rural Partnerships, \$100,000, unfunded

2021

"Supporting and promoting Vermont's honey industry through labeling and consumer education" PI, SCBG, \$35,905, unfunded

"Modeling and testing the interplay of collective behavior and the spread of infectious disease in humans and animals", Co-PI, NSF EEID, \$2,100,000, unfunded

2020

"Harnessing Big Data To Understand Honey Bee Survival" NSF RII Track-2FEC EPSCOR, Co-PI, \$880,000 (UVM subaward \$220,000) , unfunded

"Modeling and testing the interplay of collective behavior and the spread of infectious disease in humans and animals", Co-PI, NSF EEID, \$2,700,000, unfunded

2017

"Putting Recommendations into Action: Pollinator Protection and Outreach Program", PI, Foundation for Food and Agriculture Research, \$315,000, unfunded

2016

"Examining the 'Sit and Wait' Infection Strategies of Wild Honeybee Pathogens: A Combined Empirical-Computational Approach, Co-PI, NSF EEID \$3,000,000, unfunded

Media Appearances

Student Research Catches a Buzz at the Vermont Bee Lab, Across the Fence, 9/11/2025 <https://www.youtube.com/watch?v=KsO4zkF0InM>

New study shows Vermont beekeepers suffered significant losses in 2024-2025 season, NBC 5 WPTZ, 12/8/2025 https://www.youtube.com/watch?v=o7ZG_Uv4RQk

Survey Finds Vermont Honey Bee Colonies Suffering Major Losses. WCAX, 12/8/2025 <https://www.wcax.com/video/2025/12/08/survey-finds-vermont-honeybee-colonies-suffering-major-losses/>

VT Digger, April 18, 2025, Vermont beekeepers work to produce future generations of disease-resistant bee colonies. <https://vtdigger.org/2025/04/18/vermont-beekeepers-work-to-produce-future-generations-of-disease-resistant-bee-colonies/>

Pesticide Residues: Laboratory testing protocols help cover up chemical contamination in hives, Bee Culture, 12/1/2024

Pollen Traps and Juneteenth Preview, WCAX Across the Fence 6/14/24,
<https://www.youtube.com/watch?v=PNvFZuYuUX8>

Pollinators and Pesticides, WCAX Across the Fence, 11/28/23,
<https://www.youtube.com/watch?v=R4RLXPWVEPQ>

UVM Bee Lab, American Bee Journal, 9/1/2023

Breeding Better Bees, WCAX Across the Fence, 9/28/23,
https://www.youtube.com/watch?v=hilUAF_MrsM

Vermont Bee Lab Identifies Threats to Honeybee, WCAX Across the Fence 7/10/23,
<https://www.youtube.com/watch?v=76AR-ijeCNw>

New Vermont 'Bee Team' to study pollinator threats. WCAX. 2/14/2023.
<https://www.wcax.com/video/2023/02/14/new-vermont-bee-team-study-pollinator-threats/>

New law targets honey mislabeling in Vermont; testing has begun. VTDigger, 1/18/2021.

The plight of the humble bee. BBC Science Focus, 10/1/2019.

If you don't control Varroa, you're probably making wild bees sick and reducing overall pollinator health in your community. Notes from the lab. American Bee Journal, 9/2/2019, <https://americanbeejournal.com/category/columns/notes-from-the-lab/>

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