

CURRICULUM VITAE

Ashley L. St. Clair

Department of Ecology, Evolutionary, and Organismal Biology

Department of Entomology

Iowa State University

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Current Academic Title**Postdoctoral Research Associate**

Department of Ecology, Evolution, and Organismal Biology
 Iowa State University, Ames, IA
 Mentor: Dr. Amy Toth

Education**Ph.D., Ecology and Evolutionary Biology, Co-major Entomology**

Iowa State University, Ames, IA
 April 2015 – December 2019
 Co-advisors: Amy Toth, Matthew O'Neal
 GPA: 4.0

B.S. Biology (2012) Murray State University, Murray, KY

August 2008 – December 2012
 Advisor: Dr. Michael Flinn
 GPA: 3.16

Publications (ORCID 0000-0002-6002-9759)***Peer Reviewed Publications*** (* co-first authorship)

5) **St. Clair, A. L.**, Dolezal A. G., O'Neal M. E., Toth A. L. (2020) Pan traps for tracking honey bee activity-density: a case study in soybeans. *Insects*. 11, 366.

4) Zhang, Ge., **St. Clair, A. L.**, Dolezal, A.G., Toth, A.L., O'Neal, M. (2020) Honey bee (Hymenoptera: Apidae) pollen forage in a highly cultivated agroecosystem: Limited diet diversity and its relationship to virus resistance. *Journal of Economic Entomology*. toaa055, DOI: 10.1093/jee/toaa055

3) **St. Clair A. L.**, Zhang G., Dolezal A.G., O’Neal M.E., Toth A.L. (2020) Diversified farming in a monoculture landscape: effects on honey bee health and wild bee communities. *Environmental Entomology*. nva031, DOI: 10.1093/ee/nvaa031

2) Dolezal AG*, **St. Clair A. L.***, Zhang G, Toth AL, O’Neal ME (2019) Native habitat mitigates feast/famine conditions faced by honey bees in agricultural landscapes. *Proceedings of the National Academy of Sciences*. DOI: 10.1073/pnas.1912801116

1) Corby-Harris, V., Bowsher, J.H., Carr-Markell, M., Carroll, M., Centrella, M., Cook, S.J., Couvillon, M.J., DeGrandi-Hoffman, G., Dolezal, A., Jones, J.C., Mogren, C.L., Otto, C.R.V., Lau, P., Rangel, J., Schurch, R., and **St. Clair, A.** (2018) Emerging themes from the ESA symposium entitled “Pollinator Nutrition: Lessons from Bees at Individual to Landscape Levels”. *Bee World*. DOI: 10.1080/0005772X.2018.1535951

Extension Publications

1) Campbell, L., Hayslett, M., Hellmich, R., Bidne, K., **St. Clair, A.**, Cass, R., Hunter, D., Jakes, G., Oppedal, N. (2019) 4-H Ag Innovators Experience: Native Bee Challenge. National 4-H Council, Bayer Crop Science, Iowa State University Extension and Outreach.

Extension/Outreach Videos

4) ISU UKnow How To video series:

How to requeen a beehive: <https://www.extension.iastate.edu/video/bees>

How to split and combine beehives: <https://www.extension.iastate.edu/video/bees>

Producers: Harrison, J., Cass, R., **St. Clair, A.**

Iowa State University Department of Extension and Education, Ames, IA

3) IPM4Bees: *Varroa* monitoring methods

Alcohol wash: <https://www.youtube.com/watch?v=IyeOQGQttwc>

Sugar shake: <https://www.youtube.com/watch?v=xNT0JxFMC9o>

Ether roll: https://www.youtube.com/watch?v=d2_3zuMY7Wo

Producers: Cass, R., **St. Clair, A.**, Kleinke, B.

Iowa State University Integrated Pest Management Center, Ames, IA

2) Improving Bee Health: Combining Crop Production and Conservation

https://youtu.be/_yIBZEox5Sw

Producers: **St. Clair, A.**, Cass, R., Kleinke, B.

Iowa State University Integrated Pest Management Center, Ames, IA

1) IPM4Bess Midwestern Working Group Filed Day

https://youtu.be/7k_UkaIipJY

Producers: Cass, R., **St. Clair, A.**, Kleinke, B.

Iowa State University Integrated Pest Management Center, Ames, IA

Research Experience

Postdoctoral Research

Overwintering management strategies for honey bees in temperate climates (2018-Present)

PI's: **Ashley St. Clair**, Adam Dolezal

Lead organization: Iowa State University, Ames, IA, Department of Entomology

Co-organization: University of Illinois Champaign-Urbana, IL, Department of Entomology

Lead investigator on a project examining how combinations of winter hive wrapping and insulation affect colony temperature, weight, and overwintering success of honey bee colonies in apiaries across IA and IL.

Pre-doctoral Research

Combining crop production and conservation for improved bee health. (2017 – Present)

PI's: Drs. Amy Toth, Matthew O'Neal, Erin Hodgson, and Adam Dolezal

Iowa State University, Ames, IA, Department of Entomology

Working to discover whether managed and wild bees can thrive in a landscape committed to annual crop production by addressing three sources of stress: insecticide use, forage availability, and pathogen exposure.

Forage and fecundity: does apiary location affect queen quality and brood production?

(2017 – Present)

PI's: **Ashley St. Clair** and Dr. Amy Toth

Iowa State University, Ames, IA, Department of Ecology and Evolutionary Biology

Investigating whether agricultural stress and forage availability around an apiary affect queen egg laying, how many eggs are reared into bees, and how the bees care for the queen.

Graduate Research

Diurnal timing of wild and managed bee in soybeans: a multistate study. (2017 – Present)

PI's: Dr. Matthew O'Neal, Bruce Potter, Dr. Janet Knodel, Dr. Christian Krupke, Dr. Deborah Finke, Dr. Kelley Tilmon, Dr. Adam Varenhorst, and Katherine Parys

Lead organization: Iowa State University, Ames, IA, Department of Entomology

Co-Organizations: University of Minnesota; North Dakota State University; Purdue University; University of Missouri; The Ohio State University; South Dakota State University; USDA-ARS, MS
I was the lead coordinator of research investigating the diurnal activity of bees in blooming soybean fields to gain a better understanding of how and when bees use soybean as forage to better inform management decisions for insecticide applications.

Wild bee and honey bee response to crop production, farm diversity, and native habitat in an agricultural landscape (2015 – 2017)

PI's: Drs. Amy Toth, Matthew O'Neal

Iowa State University, Ames, IA, Department of Entomology

Dissertation work investigating the impacts of agricultural intensity on the community and health of wild and managed bees in soybean by investigating how landscape variation and farm diversity impact bees and whether bee declines can be mitigated by native habitat.

Undergraduate Research

Effects of prescribed fire on herpetological diversity. (2011 – 2012)

PI's: Dr. Howard Whiteman and Robert Knopp

Murray State University, Murray, KY, Department of Biology

Field analysis of herpetofauna in Land Between the Lakes National Recreation Area, Calloway County, KY.

Microsatellite DNA analysis of arboreal termites (*Nasutitermes acajutlae*) and termite ability to regulate nest temperature and humidity. (2011)

PI: Dr. Claire Fuller

Murray State University, Murray, KY, Department of Biology

*Field collection and DNA analysis of (*Nasutitermes acajutlae*) termites in St. John, Virgin Islands. Growth and temperature regulation tests on nests at various sites on St. John.*

Macroinvertebrate density of arctic tundra burn and non-burn streams/permafrost sites in Anaktuvuk Alaska. (2010 – 2011)

PI: Dr. Michael Flinn

Murray State University, Murray, KY, Department of Biology

Identification and processing of Surber samples, preservation of invertebrates and knowledge of arctic sampling methods.

Parasitic density among terrestrial, aquatic and semiaquatic salamanders. (2010)

PI's: Dr. Leon Duobinis-Gray and Tricia Ladd

Murray State University, Murray, KY, Department of Biology

Field collection and necropsy of salamanders, slide preparation, and identification of snail and salamander specific parasites.

Selected Experience and Relevant Employment

DuPont Pioneer R&D Headquarters Tour (2017)

Johnston, IA

Toured the research and development facility to discuss, learn, and see first-hand how seed treatments are designed, tested, and applied. We gained knowledge about seed production and how products are made available to farmers. Also about what environmental and entomological testing takes place before products are market available.

Entomology Society of America Science Policy Field Tour (2017)

Jackson, MS

A field tour with 25 ESA members and 25 stakeholders from public service agencies, policymakers, NGO's, beekeepers, and crop protection agencies and commodity groups on balancing pest management and pollinator health.

The Bee Course (2016)

Southwestern Research Station, Portal, AZ, American Museum of Natural History

An intensive workshop, for conservation biologists and pollination ecologists, focusing on the identification and biology of native bees primarily in North and South America.

Laboratory Technician (2014 – 2015)

Midland Bioproducts Corporation, Boone, IA

Vial filling of goat and human antiserum for use in laboratory research and diagnostics. Skills include titrating, pipetting, filtering and centrifuging of anti-serums.

Wildlife Biologist (2013 – 2014)

Trutech LLC, Columbia, SC

Trained in removal and relocation of nuisance wildlife and pests from within residential and commercial housing. Strong knowledge of residential and commercial structural pest management techniques, applications, and DNR trapping rules and regulations.

Animal Care Technician (2011 – 2013)

Murray State University, Murray, KY, Department of Biology

Care and cleaning for animals and the facilities on campus.

Biology Student Worker (2009 – 2013)

Murray State University, Murray, KY, Department of Biology

Secretarial duties including scheduling and filing within the department of biological sciences.

Research Talks and Posters

Invited Scientific Presentations

4) **St. Clair, A.**, Dolezal, A., Zhang, G., Stein, D., O’Neal, M., Toth, A. (2019) Diversified farming in a monoculture landscape: Effects on honey bee health and wild bee communities. *Presented in member symposia “Callows and Pre-Imaginal Professionals of Pollination Research” at the national meeting of the Entomological Society of America, St. Louis, MO*

3) **St. Clair, A.**, Hendriksma, H., Zhang, G., Stein, D., Cass, R., Dolezal, A., Hodgson, E., O’Neal, M., Toth, A. (2018) Colonies under extreme stress: is the queen buffered? *Presented in member symposia “Social insect ecophysiology” International Union for the Study of Social Insects, Guarujá, Sao Paulo, Brazil*

2) **St. Clair, A.**, Dolezal, A., Zhang, G., O’Neal, M., Toth, A. (2018) The “where” and the “when” of honey bee decline in an agricultural landscape. *Presented in member symposia “Pollination Research in the North Central Region- Part I” at the North Central Branch meeting of the Entomological Society of America in Madison, WI*

1) **St. Clair, A.**, Dolezal, A., Zhang, G., Hunter, K., Hsieh, E., Toth, A., O’Neal, M. (2017) Combining soybean and prairie to mitigate declining honey bee health in Iowa. *Presented in member symposia: “Pollinators and Soybeans” at the Southeastern Branch meeting of the Entomological Society of America in Orlando, FL*

Invited Scientific Posters

1) **St. Clair, A.**, Dolezal, A., Zhang, G., Hsieh, E., O’Neal, M., Toth, A. (2017) Can providing diverse fall habitat for honey bees rescue colonies from pre-overwintering health declines in Iowa? *Presented in member symposia: “Pollinator Nutrition: Lessons from Bees at Individual to Landscape Levels” at the National Entomological Society of America meeting in Denver, CO*

Scientific Presentations

5) **St. Clair, A.**, Zhang, G., Stein, D., Dolezal, A., Hendriksma, H., Cass, R., O’Neal, M., Toth, A. (2019) Combining crop production and conservation for improved bee health: impacts on honey bee queen quality. *Presented at Graduate and Professional Student Research Conference session titled “Building Sustainable Human and Natural Ecosystems”, Iowa State University, Ames, IA*

4) **St. Clair, A.**, Zhang, G., Stein, D., Dolezal, A., Hendriksma, H., Cass, R., O’Neal, M., Toth, A. (2019) Combining crop production and conservation for improved bee health: impacts on honey bee queen quality.

Presented in ten minute paper session “P-IE Ph.D. Competition Session 2” at the North Central Branch meeting of the Entomological Society of America in Cincinnati, OH

3) **St. Clair, A.**, Hsieh, E., Stein, D., Dolezal, A., O’Neal, M., Toth, A. (2018) Queen of the prairie; can honey bee queen fecundity be rescued by prairie in a cultivated landscape?

Presented at the North Central Branch meeting of the Entomological Society of America in Madison, WI

2) **St. Clair, A.**, Dolezal, A., Zhang, G., Hsieh, E., O’Neal, M., Toth, A. (2017) Does on-farm diversity affect bee health and communities in highly cultivated landscapes?

Presented at the National Entomological Society of America meeting in Denver, CO

1) **St. Clair, A.**, Toth, A., Dolezal, A., Zhang, G., and O’Neal, M. (2016) Effects of surrounding landscape complexity on bee communities and pollination to soybean.

Presented at the International Congress of Entomology. Orlando, FL

Poster Presentations

6) **St. Clair, A.**, Dolezal, A., Zhang, G., O’Neal, M., Toth, A. (2019) Impacts of landscape complexity and honey bee presence on wild bee community in a highly cultivated landscape.

Presented in the “PI-E Pollinator” section of the national meeting of the Entomological Society of America, St. Louis, MO

5) **St. Clair, A.**, Cass, R., O’Neal, M., and Wu-Smart, J. (2019) IPM4Bees: Midwest working group’s Varroa mite management practices.

Infographic poster presented at the national meeting of the Entomological Society of America, St. Louis, MO

4) **St. Clair, A.** (2017) Can providing diverse fall habitat for honey bees rescue colonies from pre-overwintering health declines in Iowa?

Presented at GPSRC research conference. Iowa State University Ames, IA

3) **St. Clair, A.**, Zhang, G., Pritchard, S., O’Neal, M., Toth, A., and Dolezal, A. (2016) Impact of soybean on wild and managed bee health within a landscape context: activity of honey bees in soybean fields.

Presented at Iowa State University Ecology and Evolutionary Biology Symposium. Ames, IA

2) **St. Clair, A.**, Zhang, G., Pritchard, S., O’Neal, M., Toth, A., and Dolezal, A. (2015) Impact of soybean on wild and managed bee health within a landscape context: activity of honey bees in soybean fields

Presented at National Entomological Society of America. Minneapolis, MN

1) **St. Clair, A.**, Zhang, G., Hunter, K., Pritchard, Z., O’Neal, M., Toth, A., and Dolezal, A. (2015) Can honeybees be used to increase soybean pollination?

Presented at the Crops Team Fall In-Service, Ames, IA

Extension/Outreach Presentations

5) **St. Clair, A.** (2017) Pollinators in Iowa: conservation and management strategies to preserve wild and managed bees.

Presented at National Audubon Society Cedar Falls Chapter in Cedar Falls, IA

4) **St. Clair, A.** (2017) Pollinators in Iowa: conservation and management strategies to preserve wild and managed bees.

Presented to Ames High School’s school wide pollinator protection project, Ames, IA

3) **St. Clair, A.** (2017) Bee-friendly habitat: an introduction to native bees in the landscape.

Presented at the ninth annual Day of Insects at Reiman Gardens, Ames, IA

2) **St. Clair, A.** (2017) Bee-friendly habitat: an introduction to native bees in the landscape.

Presented at the USDA lab NCAH green team lunch and learn, Ames, IA

1) **St. Clair, A.** (2016) An introduction to native bees, their beauty, and importance.

Presented to Ames High School’s school wide pollinator protection project, Ames, IA

Teaching Experience

Lab Teaching Assistant

Animal Behavior Laboratory, BIOL 354L (Fall 2018, Fall 2019)

Iowa State University, Ames, IA, Department of Ecology, Evolution, and Organismal Biology

Ames High School Biology Lab (Fall 2017, Fall 2018)

Ames High School, Ames, IA

Lab Teaching Assistant (2009 – 2013)

Murray State University, Murray, KY, Department of Biology

Zoology, BIO 221 (7 Semesters)
Biological Inquiry and Analysis, BIO 216 (3 Semesters)
Human Anatomy, BIO 220 (1 Semester)

Guest Lecturer

Studio III: Performance Landscapes, LA 603 (Fall 2019)
 Iowa State University, Ames, IA, Department of Design
Guest lecture on maintaining urban landscapes to support pollinators

Animal Behavior, BIO 354 (Fall 2018)
 Iowa State University, Ames, IA, Department of Ecology, Evolution, and Organismal Biology
Guest lecture about personality in honey bees

Current Topics in Bee Biology, BIOL 495 (Spring 2018)
 Iowa State University, Ames, IA, Department of Ecology, Evolution, and Organismal Biology
Guest lecture about honey bee queen biology

Student Mentoring

Joy Westercamp (2019-2020)
 Honors Research Program, Iowa State University, Ames, IA
Independent Research Projects: Investigating the impacts of honey bee presence in a prairie landscape on wild bee community.

Zoe Pritchard (2015 – 2019)
 Honors Research Program, Iowa State University, Ames, IA
Independent Research Projects: Impact of honey bee colonies on bumble bee health at tallgrass prairies in Iowa.
Effects of honey bee colony presence on bumble bee populations in Iowa prairies.
Effects of landscape complexity on native bee abundance and diversity in soybeans.

Madison McQueen (2016 – 2018)
 Honors Research Program, Iowa State University, Ames, IA
Independent Research Projects: Effects of landscape complexity on honey bee foraging efficiency.
*Effects of diversified agriculture and landscape complexity on larval nutrition of *Agapostemon* spp.*

Quynn Westfall (2016)
 Honors Research Program, Iowa State University, Ames, IA

*Effects of diversified agriculture and landscape complexity on larval nutrition of *Melissodes bimaculata*.*

Community Outreach

Iowa Master Gardeners Program (2019)

Iowa State University, Ames, IA

Served as the Entomology specialist teaching the Entomology class for the Master Gardener's program certification

Native Bee Challenge: National 4H Council Facilitators Guide (2018)

National 4H Council (Funded by Bayer Crop Science)

Assisting with Iowa State University extension team and Bayer Crop Science in preparing a multi-state facilitators guide on native bee conservation in agriculture to be used by the national 4H council. I am in charge of writing the native bee background and native bee nest building activity.

Ames Community Preschool Center "Insects are Cool!" (2017, 2018, 2019)

ACPC Ames, IA

Speaking with preschool classrooms about pollinators and their importance. I display honey bees and equipment as well as monarch caterpillars.

Pollinator Festival (2015 - 2019)

Reiman Gardens, Ames, IA

Educate the public about pollinator preservation and awareness

Ames High School Native Plant Pollinator Garden Project (2016)

Invited to speak in November 2016, Presentation: Native bees and their importance in agriculture. Collaborating to teach techniques for monitoring bees and creating a quick guide for bee identification in the field.

Eastwood of Ames Pollinator Summer Camp (2016)

Eastwood Apartments, Ames, IA

Educate the summer camp students in the eastwood apartments about bee pollinators and create native bee nests in the neighborhood.

Marshall County Middle School Field Day (2016)

Bee Research Barn-ISU Horticultural Station, Ames, IA

Educate middle school students about honey bee biology and beekeeping. Tour the vespiary and apiary.

EGSO Insect Film Festival (2014, 2015, 2016, 2017, 2018)

Reiman Gardens, Ames, IA

Insect and pollination youth outreach fundraiser

Pollinator Awareness Week Youth Event (2015)

Pheasants Forever, Des Moines County, IA

Educate the youth of the Pheasants Forever, Des Moines County Chapter, about pollinator preservation and awareness

Cool & Crawly Critters Day (2011, 2012)

Nature Station at Land Between the Lakes National Recreation Area, KY

Public education on safety and awareness of local wildlife

Herpetology Festival (2011, 2012)

Murray State University; Herpetological Society

Public education on safety and awareness of native Kentucky herpetofauna

Services

Symposia Organization and Moderation

Symposium on Undergraduate Research & Creative Expression (2016)

Volunteer moderator of session II.C Insect Behavior, Iowa State University, Ames, IA

Manuscript Peer Reviews

Total research article reviews (3): Insect Conservation and Diversity ISSN : [1752-4598](#) (2020), Environmental Toxicology and Chemistry ISSN : [1552-8618](#) (2020), PloS One ISSN : [1932-6203](#) (2020)

Other Services

Iowa State University Child Care Task Force (2019)

Appointed Graduate and Professional Student Senate Member at Large representative to the child care task force, Iowa State University, Ames, IA

IPM4Bees Midwest Working Group Meeting (2019)

Co-coordinator of a two day workshop hosting six states to discuss issues related to IPM and honey bees, Iowa State University, Ames, IA

4-H Ag Innovator's Experience, Native Bee Challenge (2019)

Co-coordinator and developer of the national and state training on native bee diversity and health, Iowa State University, Ames, IA

Grants and Research Support

USDA-AFRI Pollinator Health and Research Grant (2020 Decision pending)

\$500,000; co-PI's **Ashley St. Clair**, Adam Dolezal, Julia Fine

Understanding agrochemical effects on honey bee queens through the development of novel risk assessment tools

USDA-AFRI Postdoctoral Fellowship Grant (2019 not awarded)

\$163,440 PI **Ashley St. Clair**

Impacts of pesticide exposure and forage quality on honey bee queen fecundity and physiological health

University of Kentucky Postdoctoral Fellowship (2019 awarded but declined)

\$47,476 PI **Ashley St. Clair**

Honey bee social physiology: Do worker bees act as the kidney for the queen?

IPM4Bees Midwest Working Group Research Grant (2019)

\$1,000 PI **Ashley St. Clair**

Varroa destructor: check for mites because you care.

Iowa Honey Producers Association Research Grant (2018)

\$3,946 PI **Ashley St. Clair**

Overwintering honey bee colonies in temperate climates: a management perspective.

Iowa Honey Producers Association Research Grant (2018)

\$3,500 PI **Ashley St. Clair**

Environmental stressors and queen quality: does low nutrition and pesticide exposure affect queen physiology?

Eastern Apicultural Society Foundation for Honey Bee Research Grant (2017)

\$10,000 PI **Ashley St. Clair**

Forage and fecundity: Does apiary location affect queen quality and brood production?

Awards and Honors

Research Excellence Award (2019)

Awarded by the graduate college for recognition of outstanding research accomplishments in a graduate program, Iowa State University, Ames, IA

First place award in Grad Poster: PI-E Pollinator Competition (2019)

National meeting of the Entomological Society of America, St. Louis, MO

Best oral presentation award (2019)

Graduate and Professional Student Research Conference, Iowa State University Ames, IA

Excellence in Teaching Award (2019)

Graduate Professional Student Senate (GPSS), Iowa State University, Ames, IA

First place award in Ph.D. Student 10-min Paper Competition (P-IE Session 2) (2019)

Talk presented at the North Central Branch meeting of the Entomological Society of America in Cincinnati, OH

Second place award in Ph.D. Student 10-min Paper Competition (P-IE Session I) (2018)

Talk presented at the North Central Branch meeting of the Entomological Society of America in Madison, WI

Second place award in Grad 10-min: Paper Competition P-IE, Pollination 1 (2017)

Talk presented at the National Entomological Society of America meeting in Denver, CO

Best poster award (2017)

Graduate and Professional Student Research Conference, Iowa State University Ames, IA

Scholarships

Entomology Alumni Scholarship (2019)

\$1,000 Scholarship from the Department of Entomology, Iowa State University

Jim Oleson Scholarship in Entomology (2019)

\$1,000 Scholarship from the Department of Entomology, Iowa State University

Larry Pedigo Graduate Scholarship in Entomology (2018)

\$2,000 Scholarship from the Department of Entomology, Iowa State University

Jim Oleson Scholarship in Entomology (2018)

\$2,500 Scholarship from the Department of Entomology, Iowa State University

Entomology Alumni Scholarship (2017)

\$2,000 Scholarship from the Department of Entomology, Iowa State University

GPSS Travel Scholarship (2017)

\$200 scholarship to travel to ESA Science Policy Field Tour in Jackson, MS

Travel Scholarship for Interdepartmental Graduate Students (2017)

\$200 scholarship to travel to ESA Science Policy Field Tour in Jackson, MS

Ecology and Evolutionary Biology Fellowship (2015-2016)

\$18,000 stipend for a 9-month appointment during the academic year of 2015-2016

Societies and Organizations

Iowa State University

Entomology Graduate Student Organization (EGSO) (2015 – Present)

Elected Vice President 2019

Elected Fundraising Committee chair 2019

Elected Social chair 2016 – 2019

Entomology Social Committee (2015 – 2018)

Graduate Research in Evolutionary Biology and Ecology (GREBE) (2015 – Present)

Murray State University

Herpetological Society (2011 – 2013)

Elected Treasurer 2011 – 2013

The Wildlife Society (2009 – 2010)

Tri Beta Society (2009 – 2010)

Professional Societies and Organizations

Eastern Apicultural Society (2017 – Present)

International Union for the Study of Social Insects (2016 – Present)

Entomological Society of America (2015 – Present)

National Parks Conservation Association (2012 – Present)

Sierra Club (2014 – 2017)

Society for the Study of Reptiles and Amphibians (2012 – 2017)

National Wildlife Federation (2011 – 2017)

Friends of LBL (Land Between the Lakes Recreation Area) (2012 – 2014)