

Dr. MICHAEL E. SCHARF (CV for years 2015-Present)

Entomology & Nematology Department, University of Florida, Gainesville FL 32611
 E-mail: mescharf@ufl.edu, Phone: 352-273-3953

PROFESSIONAL APPOINTMENTS

2022-Present	University of Florida	Sapp Endowed Professor in Urban Entomology
2014 - 2021	Purdue University	Professor, O.W. Rollins / Orkin Chair - Chair renewed in 2015 and 2020 - Sabbatical leave Fall 2019
2010 - 2014	Purdue University	Associate Professor, O.W. Rollins / Orkin Chair
2007-2010	University of Florida	Assistant, Associate Professor of Insect Molecular Toxicology
2004-2007	University of Florida	Assistant Research Scientist, Insect Toxicology
2001-2004	Purdue University	Research Specialist and Director of the Industrial Affiliates Program (Urban Entomology Center)
2000-2001	Cornell University-NYSAES	Research Associate
1997-2000	University of Nebraska	Post-Doctoral Associate
1991-1997	Purdue University	MS and PhD Graduate Research Assistant
1989 - 1991	Purdue University	Laboratory and Field Research Technician

EDUCATION

Cornell University-NYSAES	Molecular Neurotoxicology ¹	Post-Doctoral	2000-2001
University of Nebraska	Biochemical Toxicology ²	Post-Doctoral	1997-2000
Purdue University	Insect Toxicology & Urban Entomology ³	Ph.D.	1994-1997
Cardiff University (Wales, UK)	Insect Molecular Biology ⁴	Visiting Scholar	1995
Purdue University	Urban Entomology ⁵	M.S.	1991-1993
Purdue University	Entomology	B.S.	1987-1991

1. Mentor: David Soderlund
2. Mentors: Blair Siegfried, Lance Meinke
3. Mentors: Gary Bennett (co-chair), Jon Neal (co-chair), Janet Hemingway, Jeffrey Stuart
4. Mentor: Janet Hemingway
5. Mentors: Gary Bennett (chair), Byron Reid, Alan York

Administrative & Service Roles (UF 2022-Present):

2023-present Graduate Committee, Entomology & Nematology Dept.
 2022-present Urban Entomology Center of Excellence Steering Committee (with FM Oi and N-Y Su)

Administrative & Service Roles (Purdue 2010-2021):

2012-2019: Graduate Committee, Department of Entomology, Purdue University (chair in 2019).
 2015-2021: Mentor to Junior Faculty (ENTM-Laramy Enders, Aaron Smith, Ameya Gondhalekar, Jon Neal; BCHM-Jeremy Lohman).
 2010-2021: Entomology "Primary" Promotion & Tenure Committee
 2015-2017: College of Agriculture "Area" Promotion & Tenure Committee.
 2015-2016: Chair, Search and Screen Committee for Assistant Professor, *Physiologist/Biochemist specializing in Insect-Microbe Interactions* (Led to hiring of Laramy Enders).
 2012-2015: Dean's Agenda & Policy Committee, College of Agriculture (Chair, 2015).
 2011-2021: Planning committee, Annual Purdue Pest Management Conference.
 2017: Chair, Entomology Awards Committee, and rep to college committee.
 2016: Selection committee, Belcher Chair for Environmental Sustainability (FNR dept.).
 2020: USDA-NIFA-AFRI panelist (Program A1112: *Pests and Beneficial Species in Agricultural Production Systems*).
 2015-2021: *Ad hoc* peer reviewer for >150 manuscripts submitted to scientific journals.

Courses taught at UF (5000 level and above are graduate courses):

- ENY3225/5226 Principles of Urban Pest Management, Lecture and Lab (3 CR, Taught Spring 2022, 2023)
- ENY3222/5223 Biology and Identification of Urban Pests, Lecture and Lab (3 CR, Taught Fall 2022)

Courses taught in previous appt. at Purdue University (500 level and above are graduate level courses)

- ENTM 353 Insecticides and Environment, Lecture and Lab (3 CR, Taught Spring 2019, 2020, 2021). Co-taught with J. Neal in 2019-20.
- ENTM 611 Insect Toxicology, Biochemistry & Physiology (3 CR, Taught Spring 2013, 2015, 2017, 2019, 2020).
- ENTM 692 Insecticide Resistance – *Evolution, mechanisms, management* (1 CR, Taught Fall 2017, 2019).
- ENTM 393 Entomology lab practicum.
- BIO499 Biology Undergrad Research Experience (mentoring student research projects, 2013-2016).

Major professor to PhD Students:

1. Richardson, Steven. Topic: Termite molecular physiology. Aug. 2022-present.
2. Gits, Madison. Topic: Development of cockroach resistance monitoring tests for pest management professionals. Aug. 2022-present.
3. Sapkota, Rajani. Topic: Microbe-mediated responses to environmental changes in termites. 2018-2022. [Current role: Post-doctoral associate at the University of Florida.](#)
4. Wolfe, Zachery. Topic: Microbe-mediated insecticide resistance in cockroaches. 2017-2022. [Current role: Post-doctoral associated at Southern Methodist University.](#)
5. Dittmann, Matthew. Topic: Argentine ant molecular physiology and gene silencing. 2019-2022.
6. Salyer, Adam (co-chair with G.W. Bennett). Topic: Carpenter ant behavior and population genetics. 2012-2018. [Current role: Officer Entomologist, U.S. Armed Forces Pest Management.](#)
7. Kubiszak-Rushton, Mary. Topic: Termite cytochrome P450 and RNA interference to silence P450 genes. 2012-2017. [Current role: Lead Discovery Scientist, Corteva AgriScience.](#)
8. Peterson, Brittany (PULSE/OIGP program). Topic: Termite digestive symbiosis and the gut bacterial microbiome. 2012-2016. [Current role: Assistant Professor, Southern Illinois University at Edwardsville.](#)
9. Myers, Aaron. Topic: German cockroach tergal gland biochemistry. 2015-2016 ([deceased](#)).
10. Sandoval-Mojica, Andres. Topic: Molecular termiticides, termite gut physiology. 2011-2015. [Current role: Research Associate at AUM LifeTech.](#)

Major professor to MS Students:

1. Thomas, Gretchen. Topic: German cockroach molting endocrinology. Aug. 2022-present.
2. Gits, Madison. Topic: Insecticide resistance monitoring in German cockroach populations. Jan. 2020-2022.
3. Zain, Ashari (co-chair with A.D. Gondhalekar). Topic: Genetics of insecticide resistance in German cockroaches. 2016-2018.
4. Dittmann, Matthew A. (co-chair with G.W. Bennett). Topic: Molecular physiology of the invasive Argentine ant. 2016-2018.
5. Myers, Aaron (co-chair with G.W. Bennett). Topic: German cockroach tergal gland proteins and behavioral physiology. 2012-2015.

GRAD STUDENT ADVISORY COMMITTEE MEMBER (2015-present)

	Student	Level	Dept.	Years	Major Professor
1	Yichen Li	MS	ENT-NEM (UF)	2022-present	Miller
2	Alina Lorenzo	MS	ENT-NEM	2022-present	Su
3	Mba Msore	PhD	ENT-NEM	2022-present	Burgess
4	Teomie Rivera	PhD	ENTM (Purdue)	2021-present	Hans

5	Lide Bi	MS	ENTM	2021-present	Hill
6	Aaron Ashbrook	MS	ENTM	2013-2015	Bennett
7	Aaron Ashbrook	PhD	ENTM	2016-2020	Bennett/Gondhalekar
8	Aaron Rodriques	PhD	ENTM	2016-2021	Bennett/Gondhalekar
9	*Carlos Quesada	PhD	ENTM	2015-2017	Sadof
10	Carlos Brito	PhD	MCMP	2017-2018	Hill/Watts
11	Darren Chin	MS	ENTM	2014-2017	Bennett
12	Elliott Hunsinger	MS	ENTM	2020-present	Smith
13	Ethan Hillman	PhD	ABE	2016-2021	Solomon
14	*Gabriel Hughes	PhD	ENTM	2012-2016	Ginzel
15	Garrett Price	MS	ENTM	2015-2017	Richmond
16	*Julius Eason	PhD	ENTM	2016-2020	Mason
17	Kabita Kharel	PhD	ENTM	2015-2018	Baributsa
18	Kaitlyn Brill	MS	ENTM	2020-2021	Buczowski
19	Kathleen Miller	MS	ENTM	2020-2021	Krupke
20	Mahsa Fardisi	PhD	ENTM	2012-2015	Mason
21	Michael Garvey	PhD	ENTM	2013-2018	Kaplan
22	*Paola Olaya-Arenas	PhD	ENTM	2015-2019	Kaplan
23	Pragya Kandel	MS	ENTM	2020-2021	Baributsa
24	Scott Gula	MS	ENTM	2017-2019	Ginzel
25	Sudip Gaire	PhD	ENTM	2016-2020	Gondhalekar
27	Tim Anderson	PhD	ENTM	2013-2017	Zaspel
28	*Ulianova Vidal-Gomez	PhD	ENTM	2012-2017	Kaplan

*Student mentees that have completed significant portions of their research in my laboratory.

Post-doctoral scholars mentored and supported (2015-present):

1. Dr. Rajani Sapkota (University of Florida, June 2022-present) Topic: cockroach metatranscriptome responses to gel bait formulations and active ingredients.
2. Dr. Helena Avila-Arias, Co-advised with Doug Richmond of Entomology (Purdue University 2018-2020). Topic: The relationship of Japanese beetle and soil microbiota.
3. Dr. Mahsa Fardisi (Purdue University 2015-2019) Topic: German cockroach insecticide resistance management.
4. Dr. Rucha Karve, Co-advised with Rick Meilan of FNR (Purdue University 2018-2019). Topic: Development of termite-derived enzymatic herbicides.
5. Dr. Priya Rajarapu (Purdue University 2013-2016) Topic: Termite gut transcriptomics and enzymatic digestion of Ag biofuel feedstocks.

Host to International Visiting Scholars (2015-present):

- Prof. Herbert Siqueira (2019-2020, Universidade Federal Rural de Pernambuco, Brazil)
- Prof. Umut Toprak (2018 & 2019; Ankara University, Turkey)
- Muhamad Afzal, PhD Student (2019 summer-fall; Quaid-i-Azam University, Pakistan)
- Seha Song, PhD Student (2016; Pusan National University, South Korea)

GRANTS (2015-present)

External Competitive Funding

NSF CAMTech

Coevolution of insecticide and parasite resistance in the German cockroach.

2 years (June 2022-May 2024)

Total amount of award: \$200,000

Role: PI, with co-PI Roberto Pereira Univ. Florida

U.S. Housing and Urban Development Award No. 451625-19084
Development of an Assessment-Based Pest Management Protocol for German Cockroach Elimination and Bed Bug Heat Treatment in US HUD Housing
3 years (2020-2023)
Total amount of award: \$700,000 (Purdue Share - \$181,016)
Role: co-PI; PI Dini Miller, Virginia Tech University (Ended due to breach of contract by Virginia Tech)

USDA-NIFA-AFRI Award No. 109674
Revisiting An Old Invader: Unraveling Interactions Between Japanese Beetle and The Soil Environment
3 years (2018-2021)
Total amount of award: \$600,000 (Purdue Share - \$455,000)
Role: co-PI; PI Douglas Richmond, Purdue Entomology

National Science Foundation Award No. 1738503
STTR Phase II: Termite-derived enzymatic tree bio-herbicides
2 years (2017-19)
Total amount of award: \$608,000 (Purdue Share - \$248,000)
Role: co-PI; PI Jeffrey Bargiel of EntoBio LLC

National Science Foundation Award No. 1549677
STTR Phase I: Termite-derived enzymatic tree bio-herbicides
1 year (2016)
Total amount of award: \$225,000 (Purdue Share - \$65,000)
Role: co-PI; PI Jeffrey Bargiel of EntoBio LLC

U.S. Housing and Urban Development Award No. INHHU0026-14
Design and validation of insecticide resistance management strategies for German cockroaches
3 years (2015-2019)
Total amount of award: \$660,000
Role: PI; co-PI Ameya Gondhalekar

External Gift Funding (2015-present)

Gift funds from Syngenta Inc.
Support of cockroach resistance management research
2019-present
\$120,000 total since 2019
Role: co-PI; PI Ameya Gondhalekar

Gift Funds from Dr. Robert and Mrs. Karen Tarver
Support of Graduate Student Travel to Scientific Meetings
2016-2020
\$11,000 total since 2016

Gift Funds from Dr. Robert and Mrs. Karen Tarver
Establishment of an Undergraduate Diversity Internship Program
2020
One gift to date of \$5,000

Internal Funding (2015-present)

Sapp Endowment, University of Florida
Annual Payout: \$75,000 (thus far mandated to support laboratory renovation)

150th Anniversary Review Article Grant - Purdue Agriculture
Grant support for invited reviews to be completed during sabbatical leave in Fall 2019

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2019-2020

Total amount of award: \$10,000

Role: PI

Purdue HBCU Diversity Transformation Award

Role of RNA Methylation in the Caste Evolution of Social Insects

2018 calendar yr.

Total amount of award: \$7,000

Role: PI; co-PI Hongmei Li-Byarlay, Central State University, Wilberforce, OH

Purdue Discovery Park Big Idea Challenge

Revolutionizing control of vector-borne infectious diseases

2017-2019

Total amount of award: \$299,999

Role: co-PI; PI Catherine Hill, Purdue Entomology

Agency/Title of Grant: Purdue AgSEED program (Exploration of RNAi insecticides for German cockroaches)

2017-2018

Total amount of award: \$50,000

Role: PI; co-PI Ameya Gondhalekar

O. Wayne Rollins / Orkin Endowment

2010-2021

Total amount of award: \$40,000 annually (2010-2012), \$60,000 annually (2013-2021)

Role: PI

PATENTS

Provisional

Application No. 15,036,055 "TERMITE SUPEROXIDE DISMUTASES AND GLUTATHIONE PEROXIDASES FOR BIOMASS CONVERSION". Publication Date: 12/22/2016.

Issued

Scharf ME, Peterson BF. 2022. Methods, compositions, and molecular targets that exploit synergies and symbioses in the termite gut. US Patent 11,364,285.

US Patent No. 9,441,256 "Novel lignases and aldo-keto reductases for conversion of lignin-containing materials to fermentable products". Issue date: September 13, 2016.

US Patent No. 8,445,240 "Termite enzymes and uses thereof for in vitro conversion of lignin-containing materials to fermentable products" Issue date: May 21, 2013.

US Patent No. 7,968,525 "Use of RNA interference to validate new termiticide target sites and a method of termite control" Issue date June 28, 2011.

REFEREED RESEARCH PUBLICATIONS

Google Scholar profile: <https://scholar.google.com/citations?user=PezfVLgAAAAJ&hl=en>

Total Citations (March 2023): 7990, h-index: 53, i10-index: 124

2023

1. Abendroth JA, Gondhalekar AD, **Scharf ME**, Couture JJ. 2023. Cannabidiol reduces fall armyworm (*Spodoptera frugiperda*) growth by reducing consumption and altering detoxification and nutritional enzyme activity in a dose-dependent manner. *Arthropod-Plant Interactions*. *In Press*.

2. Avila-Arias H, Groves R, **Scharf ME**, Turco RF, Richmond DR. 2023. Larvae of an invasive scarab increase greenhouse gas emissions from soils and recruit gut mycobiota involved in C and N transformations. *Frontiers in Microbiology*. *In Press*.
3. Gits MP, Gondhalekar AD, **Scharf ME**. 2022. Impact of bioassay type on insecticide resistance assessment in the German cockroach (Blattodea: Ectobiidae). *Journal of Medical Entomology*. 60(2):356-363.

2022

4. Wolfe ZM, **Scharf ME**. 2022. Microbe-mediated activation of indoxacarb in German cockroach (*Blattella germanica* L.). *Pesticide Biochemistry and Physiology* 188: 105234. [DOI: 10.1016/j.pestbp.2022.105234]
5. Sapkota R, **Scharf ME**. 2022. Intercolony Comparisons of Gut Microbiome Composition from Lab Reared Eastern Subterranean Termites (Blattodea: Rhinotermitidae). *Journal of Insect Science* 22(2): 9. [DOI: 10.1093/jisesa/ieac015]
6. Rivera B, Meilan R, **Scharf ME**, Karve RA, Jenkins MA. 2022. The effect of a novel herbicide adjuvant in treating Amur honeysuckle (*Lonicera maackii*). *Invasive Plant Science and Management* 10: 1017. [DOI: 10.1017/inp.2022.15]
7. Rodrigues AR, Myers AJ, **Scharf ME**, Aryal UK, Bennett GW, Gondhalekar AD. 2022. Expression profiles of an inactive aspartic protease (Bla g 2 allergen) in different tissues and developmental stages of the German cockroach (*Blattella germanica*). *Archives of Insect Biochemistry and Physiology* e21918. [DOI: 10.1002/arch.21918]
8. Lee SH, Choe DH, **Scharf ME**, Rust MK, Lee CY. 2022. Combined metabolic and target-site resistance mechanisms confer fipronil and deltamethrin resistance in field-collected German cockroaches (Blattodea: Ectobiidae). *Pesticide Biochemistry and Physiology* 105123. [DOI: 10.1016/j.pestbp.2022.105123]
9. Avila-Arias H, **Scharf ME**, Turco RF, Richmond DS. 2022. Soil Environments Influence Gut Prokaryotic Communities in the Larvae of the Invasive Japanese Beetle *Popillia japonica* Newman. *Frontiers in Microbiology* 13. [DOI: 10.3389/fmicb.2022.854513]
10. Murgia MV, Sharan S, Kaur J, Austin W, Hagen L, Wu L, Chen L, Scott JA, Flaherty DP, **Scharf ME**, Watts VJ, Hill CA. 2022. High-content phenotypic screening identifies novel chemistries that disrupt mosquito activity and development. *Pesticide Biochemistry and Physiology* 182: 105037. [DOI: 10.1016/j.pestbp.2022.105037]
11. **Scharf ME**, Wolfe ZM, Raje KR, Fardisi M, Thimmapuram J, Bhide K, Gondhalekar AD. 2022. Transcriptome Responses to Defined Insecticide Selection Pressures in the German Cockroach (*Blattella germanica* L.). *Frontiers in Physiology* 2570. [DOI: 10.3389/fphys.2021.816675]
12. Ashbrook AR, Feder JL, **Scharf ME**, Bennett GW, Gondhalekar AD. 2022. Characterization of heat exposure-associated escape behaviors and HSP gene expression in bed bugs (*Cimex lectularius* L.). *Pest Management Science* 78: 205-216. [DOI: 10.1002/ps.6620]
13. Afzal M, Shaheen N, Shah SAA, Iqbal A, **Scharf ME**; Qureshi NA. 2022. Saccharification of agricultural lignocellulosic feedstocks by endogenous and symbiotic cellulases from the subterranean termites. *Biocatalysis and Agricultural Biotechnology* 39: 102265. [DOI: 10.1016/j.bcab.2021.102265]

2021

14. Wolfe ZM, **Scharf ME**. 2021. Differential microbial responses to antibiotic treatments by insecticide-resistant and susceptible cockroach strains (*Blattella germanica* L.). *Sci Rep*. 11(1):24196.
15. Kandel P, Scharf ME, Mason LJ, Baributsa D. 2021. Effect of Hypoxia on the Lethal Mortality Time of Adult *Sitophilus oryzae* L. *Insects*. 12(10):952.
16. Sapkota R, Nakatsu CH, **Scharf ME**. 2021. Regulation of host phenotypic plasticity by gut symbiont communities in the eastern subterranean termite (*Reticulitermes flavipes*). *J Exp Biol*. 224(19): jeb242553.
17. Gaire S, Zheng W, **Scharf ME**, Gondhalekar AD. 2021. Plant essential oil constituents enhance deltamethrin toxicity in a resistant population of bed bugs (*Cimex lectularius* L.) by inhibiting cytochrome P450 enzymes. *Pesticide Biochemistry and Physiology*. 175:104829.

18. **Scharf ME**, Peterson BF. 2021. A Century of Termite Symbiosis Research: Linking the Past with New Genomic Insights. *Annual Review of Entomology*. 66:23-43.
19. **Scharf ME**, Gondhalekar AD. 2021. Chapter 11: Insecticide resistance. In Wang CL and Rust MK, editors, *Understanding and controlling the German cockroach*. CSIRO Publishing, Clayton VIC, Australia. pp. 231-256.

2020

20. **Scharf ME**. 2020. Challenges and physiological implications of wood feeding in termites. *Current Opinions in Insect Science*. 41:79-85.
21. Olaya-Arenas P, **Scharf ME**, Kaplan I. 2020. Do pollinators prefer pesticide-free plants? An experimental test with monarchs and milkweeds. *Journal of Applied Ecology*: 57: 2019-2030.
22. Olaya-Arenas P, Hauri K, **Scharf ME**, Kaplan I. 2020. Larval pesticide exposure reduces wing size in monarch butterflies. *Scientific Reports*: 10(1):14490.
23. Quesada CR, **Scharf ME**, Sadof C. 2020. Excretion of non-metabolized insecticides in honeydew of striped pine scale. *Chemosphere* 249: 126167.
24. Gaire S, Lewis CD, Booth W, **Scharf ME**, Zheng W, Ginzel MD, Gondhalekar AD. 2020. Bed bugs, *Cimex lectularius* L., exhibiting metabolic and target site deltamethrin resistance are susceptible to plant essential oils. *Pesticide Biochemistry and Physiology*: 169: 104667.
25. Gaire S, **Scharf ME**, Gondhalekar AD. 2020. Synergistic toxicity interactions between plant essential oil components against the common beg bug. *Insects* 11(2):133.

2019

26. Fardisi M, Gondhalekar AD, Ashbrook AA, **Scharf ME**. 2019. Rapid evolutionary responses to insecticide resistance management interventions by the German cockroach. *Scientific Reports*. 9: 8292.
27. Dittmann MA, Buczkowski G, Bennett GW, **Scharf ME**. 2019. Gene expression changes in response to field-to-lab transition in the Argentine ant, *Linepithema humile*. *Journal of Insect Physiology*. 117: 103901.
28. Ashbrook AR, **Scharf ME**, Bennett GW, Gondhalekar AD. 2019. Bed bugs (*Cimex lectularius* L.) exhibit limited ability to develop heat resistance. *PLoS ONE*. 14(2): e0211677.
29. Gaire S, **Scharf ME**, Gondhalekar AD. 2019. Toxicity and neurophysiological impacts of plant essential oil components on bed bugs. *Scientific Reports*. 9(1):3961.

2018

30. Myers AJ, Gondhalekar AD, Fardisi M, Pluchar KD, Saltzmann KD, Bennett GW, **Scharf ME**. 2018. RNA interference and functional characterization of a tergal gland alpha amylase in the German cockroach. *Insect Molecular Biology*. 27(2): 143-153.
31. Raje K, Peterson BF, **Scharf ME**. 2018. Screening of 57 candidate double stranded RNAs for insecticidal activity against the pest termite *Reticulitermes flavipes*. *Journal of Economic Entomology*. 111(6):2782-2787.
32. Kostromytska O, **Scharf ME**, Buss EA. 2018. Behavioral responses of pest mole crickets, *Scapteriscus* spp., to selected insecticides. *Pest Management Science* 74: 547-556.
33. Peterson BF, **Scharf ME**. 2018. Metatranscriptomic techniques for identifying cellulases in termites and their symbionts. *Methods in Molecular Biology: Cellulases* 1796: 85-101.

2017

34. Ashbrook A, **Scharf ME**, Bennett, GW, Gondhalekar AD. 2017. Detection of reduced susceptibility to chlorfenapyr and bifenthrin-containing products in field populations of the bed bug (*Cimex lectularius* L.). *Journal of Economic Entomology* 110(3):1195-1202.
35. Fardisi M, Gondhalekar AD, **Scharf ME**. 2017. Development of diagnostic insecticide concentrations and assessment of insecticide susceptibility in German cockroach field strains (*Blattella germanica* (L.)) collected from public housing. *Journal of Economic Entomology* 110(3):1210-1217.
36. Rajarapu SP, **Scharf ME**. 2017. Saccharification of agricultural lignocellulose feedstocks and protein-level responses by a termite gut-microbe bioreactor. *Frontiers in Energy Research* 5:5.
37. **Scharf ME**, Cai YP, Sun YJ, Sen R, Raychoudhury R, Boucias DG. 2017. A meta-analysis testing eusocial co-option theories in termite gut physiology and symbiosis. *Communicative and Integrative Biology* 10:2, e1295187.

2016

38. Peterson BF, **Scharf ME**. 2016. Lower termite associations with microbes: synergy, protection and interplay. *Frontiers in Microbiology*. 7: 422.
39. Peterson BF, **Scharf ME**. 2016. Metatranscriptome sequencing reveals bacterial symbiont contributions to lower termite physiology and potential immune functions. *BMC Genomics*. 17(1): 772.
40. Gondhalekar AD, Nakayasu E, Silva I, Cooper BR, **Scharf ME**. 2016. Indoxacarb biotransformation in the German cockroach. *Pesticide Biochemistry and Physiology*. 134:14-23.
41. Sandoval A, **Scharf ME**. 2016. Silencing gut genes associated with the peritrophic matrix of *Reticulitermes flavipes* increases susceptibility to termiticides. *Insect Molecular Biology*. 25(6): 734-744.
42. Sandoval A, **Scharf ME**. 2016. Gut genes associated with the peritrophic matrix in *Reticulitermes flavipes*: Identification and characterization. *Archives of Insecticide Biochemistry and Physiology*. 90(2): 89-103.
43. Sethi A, Karl ZJ, **Scharf ME**. 2016. Digestion of termiticide bait matrices by the pest termite *Reticulitermes flavipes*. *Journal of Economic Entomology*. 109: 982-986.
44. Benoit JB, et al. (57 authors). 2016. Unique features of a global human ectoparasite identified through sequencing of the bed bug genome. *Nature Communications* 7: 10165.

2015

45. **Scharf ME**. 2015. Omic research in termites: an overview and a roadmap. *Frontiers in Genetics*, 6: 76.
46. **Scharf ME**. 2015. Termites as targets and models for biotechnology. *Annual Review of Entomology*. 60: 77-102.
47. Rajarapu SP, Shreve JT, Bhide K, Thimmapuram J, **Scharf ME**. 2015. Metatranscriptomic profiles of Eastern subterranean termites fed on second generation biofuel feedstocks. *BMC Genomic*. 16: 332.
48. Sen R, Raychoudhury R, Cai Y, Sun Y, Lietze VU, Peterson BF, **Scharf ME**, Boucias DG. 2015. Molecular signatures of nicotinoid-pathogen synergy in the termite gut. *PLoS ONE*. 10(4): e0123391.
49. Peterson BF, Stewart HL, **Scharf ME**. 2015. Quantification of symbiotic contributions to lower termite lignocellulose digestion using antimicrobial treatments. *Insect Biochemistry and Molecular Biology* 59: 80-88.
50. Karl ZJ, **Scharf ME**. 2015. Effects of five diverse lignocellulosic diets on digestive enzyme biochemistry in the termite *Reticulitermes flavipes*. *Archives of Insect Biochemistry and Physiology*. 90(2):89-103.

51. Raje K, Hughes GP, Gondhalekar AD, Ginzel MD, **Scharf ME**. 2015. Toxicity of turmeric extracts to the termite *Reticulitermes flavipes*. *Journal of Economic Entomology* 108: 1479-1485.
52. Kostromytska O, **Scharf ME**, Buss EA. 2015. Types and functions of mole cricket antennal and palpal sensilla. *Florida Entomologist* 98(2): 593-605.

Publications from 2014 and BEFORE

53. Terrapon N, Li C, Robertson HM, Ji L, Meng X, Booth W, Chen Z, Childers CP, Glastad KM, Gokhale K, Gowin J, Gronenberg W, Hermansen RA, Hu H, Hunt BG, Huylmans AK, Khalil SMS, Mitchell RD, Munoz-Torres MC, Mustard JA, Pan H, Reese JT, **Scharf ME**, Sun F, Vogel H, Xiao J, Yang W, Yang Z, Yang Z, Zhou J, Zhu J, Brent CS, Elsik CG, Goodisman MAD, Liberles DA, Roe RM, Vargo EL, Vilcinskis A, Wang J, Bornberg-Bauer E, Korb J, Zhang G, Liebig J. **2014**. Molecular traces of alternative social organization in a termite genome. *Nature Communications* 5: 3636.
54. Sethi, A., **Scharf, M.E.** 2013. Biofuels: Fungal, Bacterial Degradors of Lignocellulose. *Encyclopedia of Life Sciences: Microbiology*. Wiley & Sons, Chichester. DOI: 10.1002/9780470015902.a0020374.
55. Sethi, A., Kovaleva, E.S., Slack, J.M., Brown, S.G., Buchman, G.W., **Scharf, M.E.** 2013. A GHF7 cellulase from the protist symbiont community of *Reticulitermes flavipes* enables more efficient lignocellulose processing by host enzymes. *Archives of Insect Biochemistry and Physiology* 84: 175-193.
56. Sen, R., Raychoudhury, R., Cai, Y., Sun, Y., Lietze, V.U., Boucias, D.G., **Scharf, M.E.** 2013. Differential impacts of juvenile hormone, soldier head extract and alternate caste phenotypes on host and symbiont gene expression in the gut of the termite *Reticulitermes flavipes*. *BMC Genomics* 14: 491.
57. Gondhalekar, A., Saran, R., Scherer, C.W., **Scharf, M.E.** 2013. Implementation of an indoxacarb susceptibility monitoring program using field-collected German cockroach isolates from the United States. *Journal of Economic Entomology* 106: 945-953.
58. Boucias, D.G., Cai, Y., Sun, Y., Lietze, V.U., Sen, R., Raychoudhury, R., **Scharf, M.E.** 2013. The hindgut-lumen microbiota of the lignocellulose-degrading termite *Reticulitermes flavipes* and its responses to dietary lignocellulose composition. *Molecular Ecology*. 22: 1836-1853.
59. Raychoudhury, R., Sen, R., Cai, Y., Sun, Y., Lietze, V.U., Boucias, D.G., **Scharf, M.E.** 2013. Comparative metatranscriptomic signatures of wood and paper feeding in the gut of the termite *Reticulitermes flavipes*. *Insect Molecular Biology*. 22: 155-171.
60. Sethi, A., Slack, J., Kovaleva, E.S., Buchman, G.W., **Scharf, M.E.** 2013. Lignin-associated metagene expression in a lignocellulose-digesting termite. *Insect Biochemistry and Molecular Biology*. 43: 91-101.
61. Choi, M.Y., Vander Meer, R.K., Coy, M., Scharf, M.E. 2012. Phenotypic impacts of PBAN RNA interference in an ant, *Solenopsis invicta*, and a moth, *Helicoverpa zea*. *Journal of Insect Physiology* 58: 1159-1165.
62. Gregorc, A., Evans, J.D, **Scharf, M.E.**, Ellis, J.D. 2012. Gene expression in honey bee (*Apis mellifera*) larvae exposed to pesticides and Varroa mites (*Varroa destructor*). *Journal of Insect Physiology* 58: 1042-1049.
63. Tarver M.R., Coy, M.R., **Scharf, M.E.** 2012. Cyp15F1: A novel cytochrome P450 gene linked to juvenile hormone-dependent caste differentiation in the termite *R. flavipes*. *Archives of Insect Biochemistry and Physiology* 80: 92-108.
64. Gondhalekar, A., **Scharf, M.E.** 2012. Mechanisms underlying fipronil resistance in a multiresistant field strain of the German cockroach. *Journal of Medical Entomology* 49(1): 122-131.
65. **Scharf, M.E.**, Karl, Z.J., Sethi, A., Sen, R., Raychoudhury, R., Boucias, D.G. 2011. Defining host-symbiont collaboration in termite lignocellulose digestion: "The view from the tip of the iceberg". *Communicative and Integrative Biology* 4(6): 761-763.

66. Tiwari, S., Gondhalekar, A.D., **Scharf, M.E.**, Stelinski, L.L. 2011. Characterization of five CYP4 genes from Asian citrus psyllid and their expression levels in *Candidatus liberibacter asiaticus* infected and uninfected psyllids. Insect Molecular Biology 20(6): 733-744.
67. **Scharf, M.E.**, Karl, Z.J., Sethi, A., Boucias, D.G. 2011. Multiple levels of synergistic collaboration in termite lignocellulose digestion. PLoS ONE 6(7): e21709.
68. Tarver M.R., Schmelz, E.A., **Scharf, M.E.** 2011. Soldier caste influences on candidate primer pheromone levels and juvenile hormone-dependent caste differentiation in workers of the termite *Reticulitermes flavipes*. Journal of Insect Physiology 57: 771–777.
69. Kostromytska, O., Buss, E.A., **Scharf, M.E.** 2011. Toxicity and neurophysiological effects of selected insecticides on the mole cricket, *Scapteriscus vicinus*. Pesticide Biochemistry and Physiology 100: 27-34.
70. Schwinghammer, M.A., Zhou, X., Kambhampati, S., Bennett, G.W., **Scharf, M.E.** 2011. A novel gene from the takeout family involved in termite trail-following behavior. GENE 474: 12-21.
71. Gondhalekar, A., Song, C., **Scharf, M.E.** 2011. Development of strategies for monitoring indoxacarb and gel bait susceptibility in the German cockroach. Pest Management Science 67: 262-270.
72. Sun, J.Z. and **Scharf, M.E.** 2010. Exploring and integrating cellulolytic systems of insects to advance biofuel technology. Insect Science 17: 163-165.
73. **Scharf, M.E.** and D.G. Boucias. 2010. Potential of termite-based pre-treatment strategies for use in bioethanol production. Insect Science 17: 166-174.
74. Kaufman, P.E., Nunez, S.C., Geden, C.J., **Scharf, M.E.** 2010. Selection for resistance to imidacloprid in the house fly. Journal of Economic Entomology. 103: 1937-1942.
75. Coy, M.R., Salem T.Z., Denton J.S., Kovaleva E., Liu Z., Barber D.S., Campbell J.H., Davis D.C., Buchman G.W., Boucias D.G., **Scharf M.E.** 2010. Phenol-oxidizing laccases from the termite gut. Insect Biochemistry and Molecular Biology 40: 723-732.
76. **Scharf, M.E.**, Kovaleva, E.S., Jadhao, S., Campbell, J.H., Buchman, G.W., Boucias, D.G. 2010. Functional and translational analyses of a beta-glucosidase gene (glycosyl hydrolase family 1) isolated from the gut of the lower termite *Reticulitermes flavipes*. Insect Biochemistry and Molecular Biology. 40: 611-620.
77. Zhou, X., Kovaleva, E.S., Wu-Scharf, D., Campbell, J.H., Buchman, G.W., Boucias, D.G., **Scharf, M.E.**, 2010. Production and characterization of two recombinant beta-1,4-endoglucanases (GHF9) from the termite *Reticulitermes flavipes*. Archives of Insect Biochemistry and Physiology 74: 147-162.
78. Miura, T., **Scharf, M.E.**, 2010. Molecular basis underlying caste differentiation in termites. Chapter 9 in Bignell, D.E., Roisin, Y., Lo, N., editors. Biology of termites: a modern synthesis, pp. 211-254. New York: Springer.
79. Tarver, M.R., Zhou, X., **Scharf, M.E.** 2010. Socio-environmental and endocrine influences on developmental and caste-regulatory gene expression in the eusocial termite *Reticulitermes flavipes*. BMC Molecular Biology 11: 28.
80. Kaufman, P.E., S.C. Nunez, R.S. Mann, C.J. Geden and **M.E. Scharf**. 2010. Nicotinoid and pyrethroid insecticide resistance in house flies (Diptera: Muscidae) collected from Florida dairies. Pest Management Science 66: 290-294.
81. Wheeler MM, Tarver MR, Coy MR, **Scharf ME**. 2010. Characterization of four esterase genes and esterase activity from the gut of the termite *Reticulitermes flavipes*. Archives of Insect Biochemistry and Physiology 73: 30-48.
82. Wang C., Zhou X, Li S, Schwinghammer M, **Scharf ME**, Buczkowski G, Bennett GW. 2009. Survey and identification of termites in Indiana. Annals of the Entomological Society of America 102: 1029-1036.

83. Tartar, A., M.M. Wheeler, X. Zhou, M.R. Coy, D.G. Boucias and **M.E. Scharf**. 2009. Parallel meta-transcriptome analyses of host and symbiont gene expression in the gut of the termite *R. flavipes*. Biotechnology for Biofuels. 2: 25.
84. Smith, J.A., **M.E. Scharf**, R.M. Pereira and P.G. Koehler. 2009. pH optimization of gut cellulase and xylanase activities from the Eastern subterranean termite, *Reticulitermes flavipes*. Sociobiology 54(1): 199-210.
85. Song, C. and **M.E. Scharf**. 2009. Mitochondrial impacts of insecticidal formate esters in insecticide resistant and susceptible *Drosophila melanogaster*. Pest Management Science 65: 697-703.
86. Chaskopoulou, A., S.N. Nguyen, R.M. Pereira, **M.E. Scharf** and P.G. Koehler. 2009a. Toxicities of 31 volatile low molecular weight compounds against *Aedes aegypti* and *Culex quinquefasciatus*. Journal of Medical Entomology 46: 328-334.
87. Chaskopoulou A., Pereira RM, Scharf ME, Koehler PG. 2009b. Vapor toxicity of three prototype volatile insecticidal compounds to house fly. Journal of Medical Entomology 46(6):1400-1406.
88. Tarver M.R., E.A. Schmelz, J.R. Rocca and **M.E. Scharf**. 2009. Effects of soldier-derived terpenes on soldier caste differentiation in the termite *Reticulitermes flavipes*. Journal of Chemical Ecology 35: 256-264.
89. Smith, J.A., **M.E. Scharf**, R.M. Pereira and P.G. Koehler. 2009. Comparison of gut carbohydrase activity patterns in *Reticulitermes flavipes* and *Coptotermes formosanus* workers and soldiers. Sociobiology 53(1): 13-22.
90. Song, C. and **M.E. Scharf**. 2008a. *Formic acid*: a neurologically active, hydrolyzed metabolite of insecticidal formate esters. Pesticide Biochemistry and Physiology 92: 77-82.
91. Song, C. and **M.E. Scharf**. 2008b. Neurological disruption by low molecular weight compounds from the heterobicyclic and formate ester classes. Pesticide Biochemistry and Physiology 92: 92-100.
92. Zhou, X., M.M. Wheeler, F.M. Oi and **M.E. Scharf**. 2008. RNA interference in the termite *R. flavipes* through ingestion of double-stranded RNA. Insect Biochemistry and Molecular Biology 38: 805-815.
93. **Scharf, M.E.*** and A. Tartar. 2008. Termite digestomes as sources for novel lignocellulases. Biofuels, Bioproducts and Biorefining. 2(6): 540-552.
94. Zhou, X., M.M. Wheeler, F.M. Oi and **M.E. Scharf**. 2008. Inhibition of termite cellulases by carbohydrate-based cellulase inhibitors: evidence from *in vitro* biochemistry and *in vivo* feeding studies. Pesticide Biochemistry and Physiology 90 (1): 31-41.
95. **Scharf, M.E.** 2008. Neurological effects of insecticides and the insect nervous system. In Encyclopedia of Entomology (J.L. Capinera, Ed.), pp. 2596-2607. Springer, New York.
96. **Scharf, M.E.**, X. Zhou and M.A. Schwinghammer. 2008. Application of RNA interference in functional-genomics studies of a social insect. Pp. 205-229 in S. Barik (ed.), Methods in Molecular Biology, vol. 442: siRNA, shRNA and miRNA protocols. Humana Press, Totowa, NJ
97. **Scharf, M.E.**, C.E. Bucksapan, T.L. Grzymala and X. Zhou. 2007. Regulation of polyphenic caste differentiation in the termite *Reticulitermes flavipes* by interaction of intrinsic and extrinsic factors. Journal of Experimental Biology 210 (24): 4390-4398.
98. Wheeler, M.M., X. Zhou, **M.E. Scharf** and F.M. Oi. 2007. Molecular and biochemical markers for monitoring dynamic shifts in cellulolytic protozoa in *Reticulitermes flavipes*. Insect Biochemistry and Molecular Biology 37 (12): 1366-1374.
99. Zhou, X., J.A. Smith, P.G. Koehler, F.M. Oi, G.W. Bennett and **M.E. Scharf**. 2007. Correlation of cellulase gene expression and cellulolytic activity throughout the gut of the termite *R. flavipes*. GENE 395: 29-39.
100. Nguyen, S.N. C. Song and **M.E. Scharf**. 2007. Toxicity, synergism and neurological effects of novel volatile insecticides to insecticide-susceptible and -resistant *Drosophila* strains. Journal of Economic Entomology 100 (2): 534-544.

101. Zhou X., M.R. Tarver and **M.E. Scharf**. 2007. Hexamerin-based regulation of juvenile hormone dependent gene expression underlies phenotypic plasticity in a social insect. Development 134: 601-610.
102. Zhou, X., C. Song, T.L. Grzymala, F.M. Oi and **M.E. Scharf**. 2006. Juvenile hormone and colony conditions differentially influence cytochrome P450 gene expression in the termite *Reticulitermes flavipes*. Insect Molecular Biology 15 (6): 749-761.
103. Saltzmann, K.A., K.D. Saltzmann, J.J. Neal, **M.E. Scharf** and G.W. Bennett. 2006. Effects of the juvenile hormone analog pyriproxyfen on German cockroach, *Blattella germanica*, tergal gland development and production of tergal gland-secreted proteins. Archives of Insect Biochemistry and Physiology 63: 15-23.
104. Saltzmann, K.D., K.A. Saltzmann, J.J. Neal, **M.E. Scharf** and G.W. Bennett. 2006. Characterization of a tergal gland-secreted alpha-amylase in the German cockroach, *Blattella germanica*. Insect Molecular Biology 15 (4): 425-433.
105. Zhou, X., M.R. Tarver, G.W. Bennett, F.M. Oi and **M.E. Scharf**. 2006. Two hexamerin genes from the termite *R. flavipes*: sequence, expression, and proposed functions in caste regulation. GENE 376 (1): 47-58.
106. Zhou, X., F.M. Oi and **M.E. Scharf**. 2006. Social exploitation of hexamerin: RNAi reveals a major caste-regulatory factor in termites. Proceedings of the National Academy of Sciences USA 103 (12): 4499-4504.
107. **Scharf, M.E.**, S.N. Nguyen and C. Song. 2006. Evaluation of volatile low molecular weight insecticides using *Drosophila melanogaster* as a model. Pest Management Science 62: 655-663.
108. Wang, C., **M.E. Scharf** and G.W. Bennett. 2006. A genetic basis for resistance to gel baits, Fipronil, and sugar-based attractants in German cockroaches. Journal of Economic Entomology 99 (5): 1761-1767.
109. Green, J.M., **M.E. Scharf** and G.W. Bennett. 2006. Agonism and resource partitioning of subterranean termites, *Reticulitermes flavipes* and *R. tibialis* in a laboratory assay. Sociobiology 47 (2): 315-327.
110. Green, J.M., **M.E. Scharf** and G.W. Bennett. 2005. Impacts of soil moisture level on consumption and distribution of three sympatric subterranean termites in a laboratory assay. Journal of Economic Entomology 98 (3): 933-937.
111. Buczkowski, G., **M.E. Scharf**, C.R. Ratliff and G.W. Bennett. 2005. Efficacy of simulated barrier treatments against laboratory colonies of the pharaoh ant. Journal of Economic Entomology 98 (2): 485-492.
112. Zhou, X., **M.E. Scharf**, G. Sarath, L.J. Meinke, L.D. Chandler and B.D. Siegfried. 2005. Immunological assessment of insecticide resistance associated esterases in the western corn rootworm. Archives of Insect Biochemistry and Physiology 58 (3): 157-165.
113. **Scharf, M.E.**, C.R. Ratliff, D. Wu-Scharf, X. Zhou, B.R. Pittendrigh and G.W. Bennett. 2005. Effects of juvenile hormone III on *Reticulitermes flavipes*: changes in hemolymph protein composition and gene expression. Insect Biochemistry and Molecular Biology 35 (3): 207-215.
114. **Scharf, M.E.**, D. Wu-Scharf, X. Zhou, B.R. Pittendrigh and G.W. Bennett. 2005. Gene expression profiles among immature and adult reproductive castes of the termite *R. flavipes*. Insect Molecular Biology 14 (1): 31-44.
115. Festucci-Buselli, R.A., A.S. Carvalho-Dias, M. Oliveira-Andrade, C. Caixeta-Nunes, H. Li, J.J. Stuart, W. Muir, **M.E. Scharf** and B.R. Pittendrigh. 2005. Expression of *Cyp6g1* and *Cyp12d1* in DDT resistant and susceptible strains of *Drosophila melanogaster*. Insect Molecular Biology 14 (1): 69-78.
116. Pedra, J.H.F., R.A. Festucci-Buselli, W. Sun, W. Muir, **M.E. Scharf** and B.R. Pittendrigh. 2005. Profiling of abundant proteins associated with DDT resistance in *Drosophila melanogaster*. Proteomics 5 (1): 258-269.

117. **Scharf, M.E.**, and X. Zhou. 2005. Termite sociogenomics: a growing field. *Correspondence to Nature Reviews Genetics*.
118. **Scharf, M.E.** 2004. Neurological effects of insecticides. In D. Pimental (ed.), Encyclopedia of Pest Management. Marcel-Dekker, New York
119. Siegfried, B.D., L.J. Meinke, S. Parimi, **M.E. Scharf**, T.J. Nowatzki, X. Zhou and L.D. Chandler. 2004. Monitoring western corn rootworm susceptibility to Carbaryl and cucurbitacin baits in the areawide management pilot program. Journal of Economic Entomology 97 (5): 1726-1733.
120. Wang, C., **M.E. Scharf** and G.W. Bennett. 2004. Behavioral and physiological resistance of the German cockroach to gel baits. Journal of Economic Entomology 97 (6): 2067-2072.
121. **Scharf, M.E.**, D. Wu-Scharf, G.W. Bennett and B.R. Pittendrigh. 2004. Catalytic activity and expression of two flavin-containing monooxygenases from *D. melanogaster*. Archives of Insect Biochemistry and Physiology 57: 28-39.
122. Pedra, J.H.F., L.M. McIntyre, **M.E. Scharf** and B.R. Pittendrigh. 2004. Genome-wide transcription profile of field- and laboratory-selected DDT-resistant *Drosophila*. Proceedings of the National Academy of Sciences USA 101 (18): 7034-7039.
123. **Scharf, M.E.**, C.R. Ratliff and G.W. Bennett. 2004. Impacts of residual insecticide barriers on perimeter-invading ants, with particular reference to the odorous house ant, *Tapinoma sessile* Say. Journal of Economic Entomology 97 (2): 601-605.
124. Zhou, X., **M.E. Scharf**, G. Sarath, L.J. Meinke, L.D. Chandler and B.D. Siegfried. 2004. Partial purification and characterization of a methyl-parathion resistance-associated general esterase in *Diabrotica v. virgifera*. Pesticide Biochemistry and Physiology 78: 114-125.
125. Ye, W., C.Y. Lee, R.H. Scheffrahn, **J.M. Aleong**, N.Y. Su, G.W. Bennett and **M.E. Scharf**. 2004. Phylogenetic relationships of nearctic *Reticulitermes* species with particular reference to *R. arenicola* Goellner. Molecular Phylogenetics and Evolution 30 (3): 815-822.
126. **Scharf, M.E.**, D. Wu-Scharf, B.R. Pittendrigh and G.W. Bennett. 2003. Caste and development-associated gene expression in a lower termite. Genome Biology 4 (10): R62.
127. Zhou, X., **M.E. Scharf**, L.J. Meinke, L.D. Chandler and B.D. Siegfried. 2003. Characterization of general esterases from methyl-parathion resistant and susceptible populations of western corn rootworm. Journal of Economic Entomology 96 (6): 1855-1863.
128. **Scharf, M.E.**, C.R. Ratliff, J.T. Hoteling, B.R. Pittendrigh and G.W. Bennett. 2003. Caste differentiation responses of two sympatric *Reticulitermes* termite species to JH homologs and synthetic juvenoids in two laboratory assays. Insectes Sociaux 50 (4): 346-354.
129. Wu-Scharf, D., **M.E. Scharf**, B.R. Pittendrigh and G.W. Bennett. 2002. Expressed sequence tags from a polyphenic *Reticulitermes flavipes* cDNA library. Sociobiology 41: 479-489.
130. Parimi, S., **M.E. Scharf**, L.J. Meinke, L.D. Chandler and B.D. Siegfried. 2003. Inheritance of organophosphate resistance-associated esterases in Nebraska western corn rootworm populations. Journal of Economic Entomology 96: 131-136.
131. Zhou, X., **M.E. Scharf**, S. Parimi, L.J. Meinke, R.J. Wright, L.D. Chandler and B.D. Siegfried. 2002. Diagnostic assays based on esterase-mediated resistance mechanisms in western corn rootworms. Journal of Economic Entomology 95 (6): 1261-1266.
132. Brandt, A., **M.E. Scharf**, J.H.F. Pedra, G. Holmes, A. Dean, M. Kreitman and B.R. Pittendrigh. 2002. Differential expression and induction of two *Drosophila* cytochrome P450 genes near the *Rst(2)DDT* locus. Insect Molecular Biology 11 (4): 337-342.
133. Durham, E.W., B.D. Siegfried and **M.E. Scharf**. 2002. *In vivo* and *in vitro* metabolism of Fipronil by larvae of the European corn borer *Ostrinia nubilalis*. Pest Management Science 58: 799-804.
134. **Scharf, M.E.**, E.A. Buss, C.R. Ratliff, D.J. Brad and G.W. Bennett. 2002. Invertebrate taxa associated with subterranean termite monitoring devices in the Eastern Midwest. Sociobiology 39: 441-457.

135. Siegfried, B.D. and **M.E. Scharf**. 2001. Mechanisms of organophosphate resistance in insects. Pp. 269-272 in I. Ishaaya (ed.), Biochemical sites of insecticide action and resistance. Springer-Verlag, New York.
136. Durham, E.W., **M.E. Scharf** and B.D. Siegfried. 2001. Toxicity and neurophysiological effects of Fipronil and its oxidative sulfone metabolite on European corn borer larvae. Pesticide Biochemistry and Physiology 71: 97-106.
137. **Scharf, M.E.**, S. Parimi, B.D. Siegfried, L.J. Meinke and L.D. Chandler. 2001. Expression and induction of three family 4 cytochrome P450 genes identified from insecticide resistant and susceptible western corn rootworms. Insect Molecular Biology 10 (2): 139-146.
138. **Scharf, M.E.**, B.D. Siegfried, L.J. Meinke and L.D. Chandler. 2000. Fipronil metabolism, oxidative sulfone formation and toxicity among organophosphate resistant and susceptible western corn rootworm populations. Pest Management Science 56: 757-766.
139. **Scharf, M.E.**, B.D. Siegfried, L.J. Meinke, R.J. Wright and L.D. Chandler. 2000. Cytochrome P450 mediated N-demethylation activity and induction in insecticide-resistant and susceptible western corn rootworm populations. Pesticide Biochemistry and Physiology 67: 137-143.
140. Miota, F., B.D. Siegfried, **M.E. Scharf** and M.J. Lydy. 2000. Induction of cytochrome P450 by the herbicide atrazine in *Chironomus tentans* larvae. Chemosphere 40: 285-291.
141. Wright, R.J., **M.E. Scharf**, L.J. Meinke, B.D. Siegfried and L.D. Chandler. 2000. Larval susceptibility of an insecticide-resistant western corn rootworm population to soil insecticides: field performance, laboratory bioassays, and assays of detoxification enzymes. Journal of Economic Entomology 93: 7-13.
142. **Scharf, M.E.**, C.Y. Lee, J.J. Neal and G.W. Bennett. 1999. Cytochrome P450 MA expression in insecticide-resistant German cockroaches. Journal of Economic Entomology 92: 788-793.
143. **Scharf, M.E.**, and B.D. Siegfried. 1999. Toxicity and neurophysiological effects of Fipronil and Fipronil-sulfone on the western corn rootworm. Archives of Insect Biochemistry and Physiology 40: 150-156.
144. **Scharf, M.E.**, L.J. Meinke, R.J. Wright, L.D. Chandler and B.D. Siegfried. 1999. Metabolism of Carbaryl by insecticide resistant and susceptible western corn rootworm populations. Pesticide Biochemistry and Physiology 63: 85-96.
145. **Scharf, M.E.**, L.J. Meinke, B.D. Siegfried, R.J. Wright and L.D. Chandler. 1999. Carbaryl susceptibility, diagnostic concentration determination and synergism for U.S. populations of western corn rootworm. Journal of Economic Entomology 92: 33-39.
146. Miota, F., **M.E. Scharf**, P. Marçon, M. Ono, R.J. Wright, L.D. Chandler, L.J. Meinke and B.D. Siegfried. 1998. Mechanisms of methyl and ethyl parathion resistance in the western corn rootworm. Pesticide Biochemistry and Physiology 61: 39-52.
147. Siegfried, B.D.*, L.J. Meinke and **M.E. Scharf**. 1998. Resistance management concerns for areawide management programs. Journal of Agricultural Entomology 15: 359-370.
148. **Scharf, M.E.**, J.J. Neal, C.B. Marcus and G.W. Bennett. 1998. Cytochrome P450 purification and immunological detection in an insecticide resistant strain of German cockroach. Insect Biochemistry and Molecular Biology 28 (1): 1-9.
149. Dong, K., S.M. Valles, **M.E. Scharf**, B.C. Zeichner and G.W. Bennett. 1998. The knockdown resistance mutation in pyrethroid-resistant German cockroaches. Pesticide Biochemistry and Physiology 60: 195-204.
150. Wu, D., **M.E. Scharf**, J.J. Neal, D.R. Suiter and G.W. Bennett. 1998. Mechanisms of fenvalerate resistance in the German cockroach. Pesticide Biochemistry and Physiology 61: 53-62 30.
151. **Scharf, M.E.**, J.J. Neal and G.W. Bennett. 1998. Changes of insecticide resistance levels and detoxication enzymes following insecticide selection in the German cockroach. Pesticide Biochemistry and Physiology 59: 67-79.

152. **Scharf, M.E.**, W. Kaakeh and G.W. Bennett. 1997. Changes in an insecticide resistant field-population of German cockroach following exposure to an insecticide mixture. Journal of Economic Entomology 90: 38-48.
153. **Scharf, M.E.**, G.J. Small, J. Hemingway and G.W. Bennett. 1997. Examination of esterases from insecticide resistant and susceptible strains of *B. germanica*. Insect Biochemistry and Molecular Biology 27: 489-497.
154. Kaakeh, W., **M.E. Scharf** and G.W. Bennett. 1997. Comparative contact activity and residual life of juvenile hormone analogs used for German cockroach control. Journal of Economic Entomology 90: 1247-1253.
155. Kaakeh, W., **M.E. Scharf** and G.W. Bennett. 1997. Efficacy of conventional insecticide and juvenoid mixtures on an insecticide resistant field population of German cockroach. Journal of Agricultural Entomology 14: 339-348.
156. **Scharf, M.E.***, and G.W. Bennett. 1997. Insecticide resistance in the German cockroach and current options for its management. Recent Research Developments in Entomology 1: 23-35.
157. **Scharf, M.E.**, J. Hemingway, B.L. Reid, G.J. Small and G.W. Bennett. 1996. Toxicological and biochemical characterization of insecticide resistance in a field-collected strain of *B. germanica*. Journal of Economic Entomology 89: 322-331.
158. **Scharf, M.E.**, G.W. Bennett, B.L. Reid and C. Qiu. 1995. A comparison of three insecticide resistance detection methods for the German cockroach. Journal of Economic Entomology 88: 536-542.

EXTENSION/TRADE PUBLICATIONS (2015-present) (*denotes articles for which I was interviewed)

1. Was the subject of a biographical career profile article in Florida Pest Pro Magazine (Vol. 18, Jan/Feb 2022).
2. *Interviewed for the article "Ants, rats and roaches, oh my! Hurricane Ian's debris stirs up pest increase in Florida" by Max Chesnes. Tampa Bay Times (11/03/22).
3. *(10/27/22) Interviewed by Anne Nagro of Pest Control Technology (PCT) Magazine for a follow-up to the article "The case of the disappearing urban entomologists", which was published earlier in October 2022.
4. Ashbrook A, Scharf ME, Bennett GW, Gondhalekar AD. 2020. Determining the Ability of Bed Bug Populations to Develop Thermal Tolerance. Pest Control Technology Magazine. September.
5. Gooch H (*Scharf ME). 2020. Entomologist insights from recent German cockroach studies: *Knowledge is power*. Pest Management Professional Magazine. October.
6. Wolfe Z, Sapkota R (*Scharf ME). 2020. Is gut bacteria a secret weapon? Pest Control Technology Magazine July: 58-60.
7. Harbison B (*Scharf ME). 2020. German Cockroaches: More Difficult to Control. Pest Control Technology Magazine. July.
8. Sapkota R, Wolfe Z (*Scharf ME). 2020. Microbes & management. Pest Control Technology Magazine. April.
9. Harbison B (*Scharf ME). 2019. Rapid Cross-Resistance Bringing Cockroaches Closer to Invincibility, Purdue Researchers Report. Pest Control Technology Magazine. June.
10. Nagro A (*Scharf ME). 2018. Make Way for Biopesticides. Pest Control Technology Magazine. December.
11. Merchant M (*Scharf ME). 2018. Mallis & Beyond - 2018 National Conference on Urban Entomology Summary. Pest Control Technology Magazine. September.
12. Anonymous (*Scharf ME). 2018. On Target - Newly developed insecticide and fungus combination could more effectively control, eliminate termites. Pest Control Technology Magazine. March.
13. Heinsohn K (*Scharf ME). 2017. The Importance of German Cockroach Baiting. Pest Control Technology Magazine. December.

14. Anonymous (*Scharf ME). 2016. Researchers Determine Bed Bug Genome. Pest Control Technology Magazine. March.
15. Anonymous (*Scharf ME). 2016. Bed Bug Genome Uncovers Biology of a Pest on the Rebound. Pest Control Technology Magazine. February.
16. Anonymous (*Scharf ME). 2016. Gut Check. Pest Control Technology Magazine. February.
17. DeFranco, D (*Scharf ME). 2015. Bait Rotation: Crucial to Control. Pest Control Technology Magazine. July.
18. Anonymous (*Scharf ME). 2015. Nicotinoid and Fungal Disease Team up to Break Down Termites' Tough Defenses. Pest Control Technology Magazine. May.
19. Nagro A (*Scharf ME). 2015. Market Watch - No Funding, No Future. Pest Control Technology Magazine. March.

INVITED SEMINARS and EXTENSION PRESENTATIONS (2015-present)

1. **(03/09/23)** Invited Seminar at Texas A&M University. Title: Addressing the problem of insecticide resistance in urban pests.
2. **(11/09/22)** University of Georgia Getting the Best of Pests webinar series. Title: Demystifying cockroach resistance (>250 attendees).
3. **(10/12/22)** NPMA Pest World Meeting, Boston, MA. Title: Pesticide Toxicology 101: Advanced Training for non-Scientists (>250 attendees).
4. **(06/26/22)** UF International Termite Short Course, Davie, FL, Seminar Presentation: Challenges and physiological implications of wood feeding in termites.
5. **(06/26/22)** UF International Termite Short Course, Davie, FL, Seminar Presentation: Caste differentiation themes and regulation in lower termites.
6. **(06/22/22)** IFAS Lake Co. Extension CEU day for Right of Way and Natural Area pesticide licensees. Title: The Process Pesticides Go Through and How It Translates into Label Language (>200 attendees).
7. **(05/11/22)** University of Georgia Getting the Best of Pests webinar series. Title: Insecticide modes of action, formulations, safety (>250 attendees).
8. **(05/03/22)** UF Southeast Pest Management Conference. Title: Understanding Label Language: The Process Pesticides go through and how it Translates into Label Language (>200 attendees).
9. **March 2022:** Pesticide Toxicology Overview. Annual Vector Management Workshop, University of Florida, Gainesville FL.
10. **Jan 2022:** UNDERSTANDING LABEL LANGUAGE: The Process Pesticides go through and how it Translates into Label Language. Annual Purdue Pest Management Conference, West Lafayette IN.
11. **Jan 2022:** PESTICIDES 101: Formulations including Mode of Action. Annual Purdue Pest Management Conference, West Lafayette IN.
12. **April 2021:** Paul Dahm Memorial Lecture in Insect Toxicology, Iowa State University (virtual presentation). Title: Addressing the problem of insecticide resistance in urban pests.
13. **Jan 2021:** Termite biology updates. Annual Purdue Pest Management Conference, West Lafayette IN.
14. **Aug 2020:** Cockroach and bed bug resistance to insecticides. University of Tennessee Annual Cockroach and Bed Bug Conference (presented as webinar due to COVID).
15. **March 2020:** Cockroach and bed bug resistance to insecticides. Indiana Vector Control Association annual meeting, Nashville IN.
16. **Feb 2020:** Integrative Toxicology Research and vision for the Metcalf Endowed Chair. Invited seminar, Department of Entomology, University of Illinois at Urbana-Champaign.

17. **Feb 2020:** Fun with termites: *from basic biology to novel biotechnology*. Invited seminar, Department of Entomology, University of Illinois at Urbana-Champaign.
18. **Jan 2020:** A progressive approach to roach management including multi-unit housing. Annual Purdue Pest Management Conference, West Lafayette IN.
19. **Jan 2020:** RNAi gene silencing methods seminar. Entomology Grad Student Organization, Purdue University.
20. **Nov 2019:** Fun with termites: *from basic biology to novel biotechnology*. Invited seminar, Dept. of Biological Sciences, Southern Illinois University at Edwardsville.
21. **May 2019:** Leadership vision and overview of scholarly activities. Department of Entomology, Ohio State University.
22. **Jan 2019:** Purdue urban entomology research update. Annual Purdue Pest Management Conference, West Lafayette IN.
23. **Jan 2019:** Cockroach resistance management recommendations for HUD management, tenants and contractors. HUD Healthy Homes Lunch Webinar Series.
24. **Nov 2018:** Integrative toxicology research in urban pest insects. Invited seminar, Department of Entomology, University of Illinois at Urbana-Champaign.
25. **Sep 2018:** Pest Control Down to a Science: *Turning basic information into business outcomes*. Rollins Inc. Leadership Forum, Atlanta GA.
26. **Sep 2018:** Insecticide Resistance and History of the Purdue Urban Entomology Program. Rollins Inc. Technical Symposium, Atlanta GA.
27. **June 2018:** Termite biomimicry and termite-assisted learning. Purdue Polytechnic TRAILS summer institute [Teachers and Researchers Advancing Integrated Lessons in STEM].
28. **Feb 2018:** Fun with Termites: *The gut as a physiological foundation for social living*. Eco Lunch Seminar Series, Dept. of Biology, Purdue University.
29. **Jan 2018:** Resistance management for cockroaches and bed bugs. Annual Purdue Pest Management Conference, West Lafayette IN.
30. **Oct 2017:** Insecticide mode of action update. University of Georgia, Getting the best of pests webinar series. Talk available at: <https://www.youtube.com/watch?v=SHkZwqL8ZHs>
31. **June 2016:** Termites as models and sources for novel biomass conversion strategies. Presentation to team from Archer Daniels Midland Inc., Purdue OTC Office.
32. **Dec 2015:** Integrative toxicology research in urban pest insects. Invited seminar, Department of Entomology, University of Nebraska-Lincoln.
33. **Sep 2015:** Overview of the Scharf lab at Purdue. Presentation to Rentokil Inc.
34. **Aug 2015:** Insecticide resistance management in cockroaches and bed bugs. University of Georgia, Getting the best of pests webinar series. Talk available at: <https://www.youtube.com/watch?v=QHqzrrlI0Xk>
35. **Oct 2015:** Insecticide mode of action. University of Georgia, Getting the best of pests webinar series.
36. **Jan 2015:** Cockroach and Bed Bug resistance to insecticides. Annual Purdue Pest Management Conference, West Lafayette IN.