

CURRICULUM VITAE

P. LARRY PHELAN

Office: Department of Entomology
OARDC/The Ohio State University
Wooster, OH 44691

Phone: (330)-263-3728
FAX: (330)-263-3686
email: phelan.2@osu.edu

Education:

University of California, Riverside, CA. Ph.D. in Entomology, 1984.
Michigan State University, E. Lansing, MI. M.S. in Entomology, 1981.
The College of Wooster, Wooster, OH. B.A. in Biology, 1976.

Professional Employment:

1998-present: Professor, 75% OARDC/25% College of Biological Sciences
The Ohio State University/OARDC, Wooster, OH
1991-1998: Assoc. Professor, 75% OARDC/25% College of Biological Sciences
1986-1991: Asst. Professor, 75% OARDC/25% College of Biological Sciences
1984-1985: Postdoctoral Researcher, Univ. of California, Riverside, Entomology.
1980-1984: Graduate Assistant, Univ. of California, Riverside, Entomology.
1977-1980: Graduate Assistant, Michigan State University, Entomology

Professional Societies:

International Society of Chemical Ecology
Entomological Society of America

Awards and Patents :

1997 OARDC Department Research Award
U. S. Patent No. 5,104,654. Ovipositional disruption of the Navel Orangeworm with
fatty acids. Issued: April 14, 1992.
1989 OARDC Faculty Distinguished Research Award (Junior Faculty)

Refereed Journal Articles:

Johnson, C. A., Phelan, P. L., and Herbers, J. M. 2008. Stealth and reproductive dominance in a rare parasitic ant. *Animal Behaviour*. **76**: 1965-1976.

Beanland, L., Phelan, P. L., and Salminen, S. 2003. Micronutrient interactions on soybean growth and the developmental performance of three insect herbivores. *Environ. Entomol.* **32**: 641-651.

Heath, J. J., Williams, R. N., and Phelan, P. L. 2002. Aggregation and male attraction to feeding virgin females in *Macrodactylus subspinosus* (F.) (Coleoptera: Scarabaeidae: Melolonthinae) *Environ. Entomol.* **31**: 934-940.

Heath, J. J., Williams, R. N., and Phelan, P. L. 2001. High light intensity: A critical factor in the wind-tunnel flight of two scarabs, the rose chafer and Japanese beetle. *J. Chem. Ecol.* **27**: 419-429.

Prokopy, R. J., Phelan, P. L., Wright, S. E., Minalga, A. J., Barger, R., and Leskey, T. C. 2001. Compounds from host fruit odor attractive to adult plum curculios (Coleoptera: Curculionidae). *J. Entomol. Sci.* **36**: 122-134.

Leskey, T. C., Prokopy, R. J., Wright, S. E., Phelan, P. L. and Haynes, L. W. 2001 Evaluation of individual components of plum odor as potential attractants for adult plum curculios. *J. Chem. Ecol.* **27**: 1-17.

Busch, J. W., and P. L. Phelan. 1999. Mixture models of soybean growth and herbivore performance in response to nitrogen-sulphur-phosphorous nutrient interactions. *Ecol. Entomol.* **24**: 132-145.

Phelan, P. L. 1997. Soil-management history and the role of plant mineral balance as a determinant of maize susceptibility to the European corn borer. *Biol. Agric. Hort.* **15**: 25-34.

Phelan, P. L., Norris, K., and Mason, J. R. 1996. Soil-management history and host preference by *Ostrinia nubilalis* (Hübner): Evidence for plant mineral balance as a mechanism mediating insect/plant interactions. *Environ. Entomol.* **25**: 1329-1336.

Phelan, P. L., J. R. Mason, and B. R. Stinner. 1995. Soil-fertility management and host preference by European corn borer, *Ostrinia nubilalis* (Hübner), on *Zea mays* L.: A comparison of organic and conventional chemical farming. *Agric., Ecosyst. & Environ.* **56**:1-8.

Lopes, J. R. S., L. R. Nault, and P. L. Phelan. 1995. Periodicity of diel activity of *Graminella nigrifrons* (Homoptera: Cicadellidae) and implications for leafhopper dispersal. *Ann. Entomol. Soc. Am.* **88**: 227-233.

Blackmer, J. L., and P. L. Phelan. 1995. Ecological analysis of Nitidulidae: Seasonal occurrence, host choice, and habitat preference. *J. Appl. Entomol.* **119**:321-329.

Prokopy, R. J., S. S. Cooley, and P. L. Phelan. 1995. Bioassay approaches to assessing behavioral responses of Plum Curculio adults (Coleoptera: Curculionidae) to host fruit odor. *J. Chem. Ecol.* **21**: 1073-1084

Royalty, R. N., P. L. Phelan, and F. R. Hall. 1994. Effects of host-plant quality on male twospotted spider mite (Acari: Tetranychidae) mate location and guarding behavior. *J. Insect Behav.* **7**: 739-752.

Royalty, R. N., P. L. Phelan, and F. R. Hall. 1993. Quantitative and temporal analysis of effects of twospotted spider mite (Acari: Tetranychidae) female sex pheromone on male guarding behavior. *J. Chem. Ecol.* **19**: 211-223.

Royalty, R. N., P. L. Phelan, and F. R. Hall. 1993. Comparative effects of form, colour, and pheromone of two-spotted spider mite quiescent deutonymphs on male guarding behaviour. *Physiol. Entomol.* **18**: 303-316

Lin, H., and Phelan, P. L. 1992. Comparison of volatiles from beetle-transmitted *Ceratomyces fagacearum* and four non-insect-dependent fungi. *J. Chem. Ecol.* **18**: 1623-1632.

Blackmer, J. L., and Phelan, P. L. 1992. Chemical "generalists" and behavioral

"specialists": A comparison of host finding by *Stelidota geminata* and *S. octomaculata*. *Entomol. exp. & appl.* **63**: 249-257.

Lin, H., P. L. Phelan, and R. J. Bartelt. 1992. Synergism between synthetic food odors and the aggregation pheromone for attracting *Carpophilus lugubris* in the field (Coleoptera: Nitidulidae). *Environ. Entomol.* **21**: 156-159.

Royalty, R. N., P. L. Phelan, and F. R. Hall. 1992. Arrestment of male twospotted spider mite caused by female sex pheromone. *J. Chem. Ecol.* **18**: 137-153.

Lin, H., and P. L. Phelan. 1991. Identification of food volatiles attractive to *Glischrochilus quadrisignatus* and *Glischrochilus fasciatus* (Coleopt.: Nitidulidae). *J. Chem. Ecol.* **17**: 2469-80.

Blackmer, J. L., and P. L. Phelan. 1991. Effect of physiological state and fungal inoculation on chemically modulated hostplant finding by *Carpophilus hemipterus* and *Carpophilus lugubris*. *Entomol. exp. & appl.* **61**: 33-43.

Phelan, P. L., and H. Lin. 1991. Chemical characterization of fruit and fungal volatiles attractive to dried-fruit beetle, *Carpophilus hemipterus* (L.) (Coleoptera: Nitidulidae). *J. Chem. Ecol.* **17**:1253-72

Lin, H., and P. L. Phelan. 1991. Identification of food volatiles attractive to dusky sap beetle, *Carpophilus lugubris* (Coleoptera: Nitidulidae). *J. Chem. Ecol.* **17**:1273-1286.

Phelan, P. L., C. J. Roelofs, R. R. Youngman, and T. C. Baker. 1991. Chemical characterization of volatiles mediating ovipositional host-plant finding by *Amyelois transitella* females. *J. Chem. Ecol.* **17**:599-613

Phelan, P. L., A. W. Smith, and G. R. Needham. 1991. Mediation of host selection by cuticular hydrocarbons in the honey bee tracheal mite, *Acarapis woodi* (Rennie). *J. Chem. Ecol.* **17**: 463-473.

Blackmer, J. L., and P. L. Phelan. 1991. Behavior of *Carpophilus hemipterus* (L.) (Coleoptera: Nitidulidae) in a vertical flight chamber: Transition from phototactic to vegetative orientation. *Entomol. exp. & appl.* **58**:137-148.

Baker, T. C., W. Francke, J. Millar, C. Löfstedt, B. Hansson, J.-W. Du, P. L. Phelan, R. S. Vetter, R. Youngman, J. Todd. 1991. Isolation and identification of sex-pheromone components of the carob moth, *Ectomyelois ceratoniae* (Zeller). *J. Chem. Ecol.* **17**: 1973-1988.

Phelan, P. L., and T. C. Baker. 1990. Information transmission during intra- and interspecific courtship in *Ephesia elutella* and *Cadra figulilella*. *J. Insect Behav.* **3**: 589-602.

Todd, J. L., P. L. Phelan, and L. R. Nault. 1990. Orientation of the leafhopper, *Dalbulus maidis* (Homoptera: Cicadellidae), to different wavelengths of reflected light. *J. Insect Behav.* **3**: 567-571.

Phelan, P. L., and T. C. Baker. 1990. A comparative study of courtship in twelve phycitine moths (Lepidoptera:Pyralidae). *J. Insect Behav.* **3**: 303-326.

Todd, J. L., P. L. Phelan, and L. R. Nault. 1990. Interaction between visual and olfactory

stimuli during host-finding by the leafhopper, *Dalbulus maidis* (Homoptera: Cicadellidae). *J. Chem. Ecol.* **16**:2121-2133.

Tang, J. D., R. E. Charlton, R. A. Jurenka, W. A. Wolf, P. L. Phelan, and W. L. Roelofs. 1989. Regulation of pheromone biosynthesis by a brain hormone in two moth species. *Proc. Nat. Acad. Sci. USA* **86**: 1806-1810.

Baker, T. C., W. Francke, C. Löfstedt, B. Hansson, J.-W. Du, P. L. Phelan, R. S. Vetter, and R. Youngman. 1989. Isolation, identification, and synthesis of sex pheromone components of the Carob moth, *Ectomyelois ceratoniae*. *Tetrahedron Letters* **30**: 2901-2902.

Phelan, P. L., and T. C. Baker. 1987. Evolution of male courtship pheromones in moths: Reproductive isolation through sexual selection? *Science* **235**: 205207.

Phelan, P. L., and T. C. Baker. 1987. An "attracticide" for control of *Amyelois transitella* (Lepidoptera: Pyralidae) in almonds. *J. Econ. Entomol.* **80**: 779783.

Phelan, P. L., and T. C. Baker. 1986. Male-size-related courtship success and intersexual selection in the tobacco moth. *Experientia* **42**: 1291-1293.

Phelan, P. L., and T. C. Baker. 1986. Cross-attraction of five species of stored-product Phycitinae (Lepidoptera:Pyralidae) in a wind tunnel. *Environ. Entomol.* **15**: 369372.

Phelan, P. L., and T. C. Baker. 1986. Chemical identification and behavioral characterization of male wing pheromone of *Ephestia elutella* (Pyralidae). *J. Chem. Ecol.* **12**: 135146.

Baker, T. C., M. A. Willis, K. F. Haynes, and P. L. Phelan. 1985. A pulsed cloud of sex pheromone elicits upwind flight in male moths. *Physiol. Entomol.* **10**: 257265.

Baker, T. C., M. A. Willis, and P. L. Phelan. 1984. Optomotor anemotaxis polarizes self-steered zigzagging in flying moths. *Physiol. Entomol.* **9**: 36576.

Phelan, P. L., and J. R. Miller. 1982. Post-landing behavior of alate *Myzus persicae* as altered by (E)- β -farnesene and three carboxylic acids. *Entomol. exp. appl.* **32**: 4653.

Phelan, P. L., and J. R. Miller. 1981. Separation of isomeric insect pheromonal compounds using reversed phase HPLC with AgNO₃ in the mobile phase. *J. Chromatog. Sci.* **19**: 1317.

Phelan, P. L., M. E. Montgomery, and L. R. Nault. 1976. Orientation and locomotion of apterous aphids dislodged from their hosts by alarm pheromone. *Ann. Entomol. Soc. Am.* **69**: 5356.

Book Chapters and contributions:

Phelan, P. L. 2009. Ecology-based agriculture and the next green revolution: Is modern agriculture exempt from the laws of ecology?, pp. 97-135, in *Sustainable Agroecosystem Management: Integrating Ecology, Economics, and Society*, P. J. Bohlen and G. House, eds, CRC Press, Boca Raton, FL.

Phelan, P. L. 2004. Connecting belowground and aboveground food webs: The role of organic matter in biological buffering, pp.199-225, in *Soil Organic Matter Management in Sustainable Agriculture*. F. Magdoff and R. R. Weil, eds. CRC Press, Boca Raton, FL.

Phelan, P. L. 2001. Ovipositional disruption employing semiochemicals, in *Encyclopedia of Pest Management*, D. Pimental, ed. Marcel Dekker, New York.

Phelan, P. L. 1997. Evolution of mate signaling in moths: phylogenetic considerations and predictions from the asymmetric tracking hypothesis. In *The Evolution of Mating Systems in Insects and Arachnids*, eds. J. C. Choe and B. J. Crespi, pp. 240-256. Cambridge University Press, Cambridge.

Phelan, P. L. 1996. Genetics and phylogenetics in the evolution of sex pheromones, in *Pheromone Research: New Directions*, R. T. Cardé and A. K. Minks, eds. Chapman and Hall.

Phelan, P. L. 1992. Evolution of sex pheromones and the role of asymmetric tracking, in *Evolutionary Perspectives in Insect Chemical Ecology*, M. B. Isman and B. D. Roitberg, eds., pp. 265-314. Chapman and Hall Ltd., New York.

Phelan, P. L., and B. R. Stinner. 1992. Microbial mediation of plant-herbivore ecology, in *Herbivores: Their Interaction with Secondary Plant Metabolites*, G. A. Rosenthal and M. Berenbaum, eds., pp. 279-315, Academic Press.

Nault, L. R., and P. L. Phelan. 1984. Alarm pheromones and sociality in pre-social insects, in *Chemical Ecology of Insects*. W. J. Bell and R. T. Cardé (eds.). pp. 237-256. Chapman and Hall Ltd., New York.

Non-refereed articles:

Phelan, P. L., Stinner, D. H., McCartney, D. A., and Nacci, C. A. 2008. Application of the Niche Concept to Organic Weed Management. Proceedings of the Midwest Organic Research Symposium.

Prokopy, R., Wright, S., Minalga, A., Chandler, B., Black, J., Leskey, T., Barger, R., and Phelan, P. 2000. Several host-odor compounds are attractive to plum curculio adults. *Fruit Notes*. **64**: 9-12.

Heath, J.J., P.L. Phelan, and R.N. Williams. 2000. Raspberry crown borer sex attractant pheromone. *Proc. Ohio Fruit & Vegetable Growers Congress*. **2000**: 18-19.

Prokopy, R., Wright, S., Leskey, T., and Phelan, P. 1999. Toward development of an effective trap to monitor plum curculio: 1998 results. *Proc. New England Fruit Mtgs*. **105**: 130-132.

Prokopy, R., Wright, S., Leskey, T., and Phelan, P. 1998. Toward development of an effective trap to monitor plum curculio: 1998 results. *Proc. New England Fruit Mtgs*. **104**: 73-76.

Leskey, T., Bakis, M., Gagne, H., Phelan, P., and R. Prokopy. 1997. Petal fall is the most attractive development stage of McIntosh apple trees to plum curculio. *Fruit Notes* **62**: 13-15.

Leskey, T., Bramlage, C., Phelan, P., and R. Prokopy. 1996. Attraction of plum curculio adults to host plant and pheromonal extracts. *Fruit Notes* **61**: 7-9.

Leskey, T., Bramlage, C., Phelan, P., and R. Prokopy. 1996. Can sprays of fatty acids repel plum curculios? *Fruit Notes* **61**: 10-11.

Phelan, P. L. Review of *Insect Pheromones in Plant Protection*, A. R. Jutsum and R. F. S. Gordon, eds., *J. Econ. Entomol.* **84**: 699-700.

Smith, A. W., P. L. Phelan, and G. R. Needham. 1989. Chemical ecology of the honey bee tracheal mite. *Amer. Bee J.* **129**: 822.

International Involvement:

Pheromone research on pine processionary moth in Portugal, sponsored by Luso-American Foundation in collaboration with M. R. Paiva, Universidade Nova de Lisboa, 1996-2000. Travel to Portugal, act as project advisor, and provide training in my lab for Portugese student.

Evolution of pheromone systems in primitive moths of Austral South America, collaboration with A. Angulo, Universidad de Concepcion, 1994-present, sponsored by NSF and OSU Center for International Studies. Travel to Chile for field study, determination of host ranges, and collection/rearing of live moths.

Invited speaker for international symposia:

-Successful commercial-scale application of plant odors for pest control in almonds using behavioral disruption, *Advances in Insect Chemical Ecology*, Universidade Nova de Lisboa, October 16, 1998

-Disruption of pest colonization using plant chemistry: Theory, mechanisms and practice, Luso-American sponsored conference on forest pests, Lisboa, Portugal, October 14, 1998.

- Entomological Research in Organic Agriculture, Vienna, Austria, March 14-16, 1995.

- Rapporteur, 1st International Symposium on Insect Pheromones, Wageningen, The Netherlands, March 10, 1994

- International Society of Chemical Ecology, Gothenburg, Sweden, August 8-11, 1989.

- XVIII International Congress of Entomology, July 3-9, 1988, Vancouver, B.C.

Grants Awarded:

\$493,343 Biological buffering and pest management in organic farming systems: The central role of organic matter. USDA-CSREES. D. Stinner, P. L. Phelan, & B. R. Stinner. 2003-2008. (Direct- \$399,608, F&A- \$93,735)

\$560,625 Vector surveillance with phytochemicals. National Institute of Allergy & Infectious Diseases. W. A. Foster and P. L. Phelan. 2005-2008. (Direct-\$375,000, F&A-\$185,625).

\$64,370 Developing a natural nontoxic replacement for organophosphate insecticides in California nut crops. USDA-SBIR. Phase I. Collaboration with Phelan Natural Chemicals, OSU allocation = \$10,000. R. B. Mellon and P. L. Phelan., 2004-2005

\$14,000 Investigating relationships between food quality and soil quality in organic systems. Organic Farming Research Foundation. Phelan. P. L. and D. Stinner. 2003-2005

\$259,158 New multi-tactic alternatives to current pesticides against key apple pests. USDA

Integrated Research, Education, and Extension Competitive Grants Program: Crops At Risk. Prokopy, R. J., D. R. Cooley, and P. L. Phelan. October 2000-Sept. 2004.

- \$110,000 Linking soil quality, plant health, and animal nutrition on dairy farms through energy and nitrogen balance. NCR Sustainable Agriculture Research & Education. Bedet, C., P. L. Phelan, B. R. Stinner. January 2001- June 2003.
- \$100,000 Development of technology and cultivars for saturation culture of soybean using subirrigation. OARDC Research Enhancement Competitive Grants. and Ohio Soybean Council. T. T. VanToai, P. L. Phelan, L. C. Brown., S. K. Harrison, and R. M. Riedel. Jan. 1997-Jan. 1999.
- \$180,000 Understanding herbivore response to plant mineral balance: A new approach. USDA/CSRS NRI Competitive Grants. P. L. Phelan. July 1995-August 1999. (Ranked 6 of 118)
- \$95,232 The role of soil-fertility management in crop nutritional quality and susceptibility to pests. USDA/CSRS Competitive Grants in Sustainable Agriculture-North Central Region. P. L. Phelan, J. G. Streeter, W. P. Weiss, and H. A. Hoitink. Sept. 1994-May 1997.
- \$61,400 Developing a monitoring system for plum curculio, based on ovipositional attractants. North Eastern Region IPM Grants. R. J. Prokopy and P. L. Phelan. 1991-2000 (only OARDC portion listed)
- \$12,700 Upgrade for Hewlett-Packard gas chromatograph/mass spectrometer. Competitive OARDC funds for equipment purchase. January 1996.
- \$45,700 A natural chemical control for spider mites in greenhouse production, P. L. Phelan, R. K. Lindquist, and J. P. Sanderson, Joseph H. Hill Foundation and Bedding Plants Foundation, July 1993-June 1997.
- \$5,854 Mating behavior of the primitive moths of austral South America, NSF International Programs and OSU Center for International Studies, P. L. Phelan, 1994-1996.
- \$13,000 Comparative effects of microbial biostimulants on corn susceptibility to European corn borer, P. L. Phelan, AgSpectrum Co., Prodex, Inc., and Geo Systems, Inc., April 1993-December 1994.
- \$15,250 Chemical characterization of twospotted spider mite sex pheromone for behavioral disruption in almonds, P. L. Phelan and F. R. Hall, Almond Board of California, July 1992-June 1993.
- \$13,000 Chemical characterization of plant odors attractive to insects, L. R. Haynes and P. L. Phelan, NSF Undergrad Research Initiative and Howard Hughes Medical Institute, May 1992-September 1992.
- \$5,000 The role of soil-fertility management in insect-plant interactions. Ohio State University Seed Grants. P. L. Phelan.. July 1992-June 1993.

- \$2,000 The relationship between plant-fertility & susceptibility of sweet corn to European corn borer. *AgSpectrum*. P. L. Phelan.. September 1992-December 1992.
- \$67,750 Developing natural control for arthropod pests in almonds: navel orangeworm P. L. Phelan, Almond Board of California, July 1986-June 1992.
- \$4,292 New formulations for ovipositional disruption of the navel orangeworm. P. L. Phelan, ConSep Membranes, May-September 1991.
- \$1,200 Efficacy of neem-oil derivatives as natural repellents of carpenter ants. P. L. Phelan, Agri-Dyne, August-December 1991.
- \$100,000 Chemical ecology of nitidulid beetles, pathogenic fungi, and their plant hosts. P. L. Phelan and R. N. Williams, USDA- Competitive Research Grants Office, July 1987-December 1990.
- \$3,150 Multiple tactics to prevent Colorado Potato Beetle infestation in Ohio Potato Fields. C. W. Hoy and P. L. Phelan, Ohio State IPM Advisory Committee, July 1989-July 1990.
- \$15,000 Chemo-orientation mechanisms of odor-source location in the Coleoptera. P. L. Phelan, OSU Research Foundation, July 1986-December 1987.

Invited Presentations:

- 2009 Biological buffering: Building resilience in agricultural systems from the ground up. University of New Hampshire, College of Life Sciences and Agriculture, March 30.
- Functional genomic analysis of biological buffering: How soil communities modulate above-ground herbivory, 6th International IPM Symposium, Portland OR, March 24.
- Stealth NOW* to control navel orangeworm and spider mites in almonds and other nut crops. Western Orchard Pest & Disease Management Conference. Portland, OR. Jan 16.
- 2008 The transition process: Understanding soil biology and its role in an organic system. Organics 101 Workshop, Co-sponsored by the Ohio Ecological Food & Farm Association and the OFFER Program of Ohio State University, Reynoldsburg, OH, Dec. 2.
- Biological buffering: Building resilience from the ground up. Iowa State University, Interdisciplinary Graduate Program in Sustainable Agriculture, Ames, IA, Nov. 5.
- Biological buffering: Mechanisms for soil microbial modulation of above-ground herbivory. Iowa State University, Interdisciplinary Graduate Program in Sustainable Agriculture, Ames, IA, Nov. 4.
- Biological buffering: Need for a systems approach to agricultural design. University of Georgia, School of Ecology, Athens GA, Oct. 24.
- Biological buffering: Building resilience from the ground up. University of Illinois, Natural Resources & Environmental Sciences, Champaign, IL, Oct. 14.
- Biological buffering: Mechanisms for soil microbial modulation of above-ground herbivory. University of Illinois, Dept of Entomology, Champaign, IL, Oct. 13.

Understanding the principles of biological buffering for organic soil management. OFFER Field Day, Wooster, OH, Aug. 28.

The transition process: Understanding soil biology and its role in an organic system. Organics 101 Workshop, Co-sponsored by the Ohio Ecological Food & Farm Association and the OFFER Program of Ohio State University, Wooster, OH, Mar. 20.

Application of the Niche Concept to Organic Weed Management. Midwest Organic Research Symposium, La Crosse, WI Feb. 22.

Application of the ecological principles for organic weed management. Ohio Ecological Food & Farm Association Annual Conference, Johnstown, OH, Feb. 16.

Functional genomics to study the modulation of aboveground insect herbivores and phytopathogens by belowground microbiota. Wooster Area Molecular Biologists Association, Wooster, OH, Feb. 1.

- 2007 Building the “biological buffering” capacity of agricultural soils with organic matter to suppress pests and weeds. Florida A & M University, Tallahassee, FL. March 27
- 2006 Biological Buffering vs. the Green Revolution: Is Modern Agriculture Exempt from the Laws of Ecology? Systems Research Symposium. International ASA-CSSA-SSSA Meetings. Nov 15. Indianapolis.
- Buffering in Agroecosystems: How Soil Organic Matter Mediates Insect-Plant and Plant-Plant Interactions. Penn State University, Dept. of Entomology. Oct 6.
- 2005 Biological Buffering: How healthy soils enhance crop resistance, productivity, and competitiveness. 25th Annual Eco-Farm Conference, Asilomar Conference Center, Pacific Grove, CA
- Biological Buffering: Understanding the connection between healthy soils, healthy plants, & pest resistance. Mustard Seed Market Organic Farming Seminar Series. April 24.
- Biological Buffering: Understanding the central role of organic matter in crop production. Ari-Energy Resources Research Meeting. Aug 16.
- Biological Buffering vs The Green Revolution: Is modern agriculture exempt from the laws of ecology?” The College of Wooster, Dept of Biology. Sept. 29.
- Ovipositional disruption using host-plant odors: From nanograms in the GC to kilograms in the orchard. Symposium: Bridging the gap between basic behavioral research and crop protection. Honoring the life and work of Ronald J. Prokopy. Entomological Society of America National Conference. Dec.18.
- 2001 Why organic farming methods reduce pest pressures- recent research. Northeast Organic Farming Assoc. of New York, 19th Annual Conf., Syracuse, NY.
- Soil organic matter, plant health, and the outbreak of insect pests. AgRestore Farmer

- Conference. Hyndman, PA.
- 1999 Soil-management history, plant health, and insect outbreaks, Ecological Farming Conference, Asilomar Conference Center, Pacific Grove, CA
- 1998 The relationship between soil-management history and corn susceptibility to pests, Farmer-Scientist Conference on Sustainable Agriculture, Yale Univ., New Haven, CT.
- 1997 Long-term soil management and its effects on crop health, USDA/North Central Sustainable Agriculture Program. Wooster OH
- Soil organic matter and corn pests. Innovative Farmers of Ohio farm tour, Ross County, 60 participants
- Managing soil organic matter for crop health, AgriEnergy Resources Annual Conference, Princeton, IL, 210 participants
- Influence of soil fertility management on insect pests and mineral nutrition of field crops, North Central Branch Entomol. Soc. of Am., Columbus, OH
- Role of soil organic matter in reducing pest problems, OSU Extension- Washington County, Agronomy night, 70 participants
- 1996 Profiles in volatiles from hosts attractive to plum curculio adults, Natl. Entomol. Soc. of Am. Conf., Louisville, KY.
- Understanding herbivore response to plant mineral balance, New University of Lisbon.
- Evolution of male and female sex pheromones in moths: The evidence for sexual selection. Dept. of Biol. Sci., Bowling Green State University.
- Using insect semiochemicals for pest control, Dept. of Biol. Sci., Bowling Green State University.
- Long-term soil organic matter management and insect outbreaks, OSU extension- Guernsey and Noble Counties, 90 participants.
- Long-term soil organic matter management and insect outbreaks, OSU extension- Carroll Harris, and Jefferson Counties, 100 participants.
- Soil/plant/insect relationships in sustainable agriculture. Joint OSU Extension/WVU Extension In-Service Program on Sustainable Agric., 70 extension agents.
- 1995 Natural chemicals for pest control, Roses Inc. National Mtg., San Diego, CA, 100 participants.
- Soil-management history as a determinant of maize susceptibility to the European corn borer. Entomological Research in Organic Agriculture, Vienna Austria.
- Natural chemicals for pest control, Roses Inc. National Meeting, Windsor Locks, Connecticut, 90 participants.

- Developing natural chemicals for pest control, Ohio Grape-Wine Short Course, Cleveland OH.
- The role of soil fertility and plant nutrition in mediating herbivore-plant interactions, Univ. Massachusetts, Dept. of Entomology.
- 1994 The role of soil fertility and plant nutrition in mediating herbivore-plant interactions, Univ. Maine, Dept. of Applied Ecology.
- Evolution of insect sex pheromones: Deciphering the roles of adaptive and nonadaptive forces, John Carroll University, Dept. of Biology.
- The role of soil fertility and plant nutrition in mediating herbivore-plant interactions, Ohio State Univ., Dept. of Entomology.
- Optimizing plant nutrition for preventative pest management, OARDC Support Council.
- Evolution of insect sex pheromones, Section Rapporteur, 1st International Symposium on Insect Pheromones, Wageningen, The Netherlands.
- 1993 Behavioral manipulation of pests using plant volatiles for crop protection. Natl. Entomol. Soc. of Am. Conference, Indianapolis.
- Nutritional and chemical ecology of insect-plant interactions: Evolutionary questions and natural pest control. The College of Wooster, Biology Dept.
- Elaboration of male courtship in the Lepidoptera: A collection of contrivances for the redolence of sexual seduction. Featured speaker, Ohio Lepidopterists Soc.
- 1992 If not pesticides, then what? Developing crop-pest control through semiochemicals and nongenetic plant resistance, Dept. of Horticulture, Ohio State Univ.
- Chemical mediation of insect host-plant finding: Understanding behavioral mechanisms and developing natural pest-control strategies, Virginia Polytechnic Institute and State University, Dept. of Entomology.
- 1991 Chemical mediation of insect host-plant finding: Understanding behavioral mechanisms and developing natural pest-control strategies, University of Maine, Dept. of Entomology.
- Chemical mediation of insect host-plant finding: Understanding behavioral mechanisms and developing natural pest-control strategies, University of Massachusetts, Dept. of Entomology.
- Chemical mediation of host-plant finding in insects: Fundamental questions and control strategies, Ohio State Univ., Dept of Entomology.
- 1990 Semiochemicals and control of plant pests, Agricultural Affairs Committee of the OSU Board of Trustees.
- Semiochemicals and control of plant pests, Agricultural Science Advisory Board, OARDC.

Pheromones and insect behavior, OARDC Support Council.

Workshop: The use of wind tunnels and flight chambers to study insect flight behavior. 7th Internat. Auchenorrhyncha Congress, Wooster, OH.

If not insecticides, then what?: Developing natural products for pest control, The College of Wooster Alumni Symposium.

Male moth pheromones: Reproductive isolation through B.O., Dept. of Entomol, OARDC.

Developing natural products for reduced insecticidal dependence. Dept. of Agronomy, OARDC.

Male lepidopteran pheromones and the evolution of reproductive isolation. Dept. of Entomology, Ohio State University.

1989 Insect chemical ecology: The insect as synthetic and analytical chemist. Dept. of Chemistry, The College of Wooster.

The evolution of male courtship pheromones in the Lepidoptera. International Society of Chemical Ecology, Gothenburg, Sweden.

Interspecific mate avoidance systems and the adaptive evolution of reproductive Isolation. Dept. of Ecology, Lund University, Lund, Sweden.

The evolution of reproductive isolation: Adaptive or incidental. Kenyon College, Dept. of Biology.

The evolution of reproductive isolation: Adaptive response or incidental change? University of Illinois, Depts. of Entomology and Ecology, Ethology, & Evolution.

1988 The evolution of male courtship pheromones in Lepidoptera. Entomological Society of America, Eastern Branch, Syracuse, NY.

The evolution of reproductive isolation as an adaptive response through sexual selection. XVIII Internat. Congress of Entomology, Vancouver, B.C.

1986 Chemical communication in insects. The College of Wooster, Dept. of Biology.

Submitted Papers/Posters Presented

2008 Chorbajian, R. A., Phelan, P. L., and Herms. D. A. Host phenological changes in foliar nutrients and chemical defenses constrain the performance of European pine sawfly larvae. National Annual ESA Meeting, Las Vegas, NV

2007 Phelan, P. L., Hogenhout, S. A., and Cañas, L. A. Functional genomics to study the modulation of aboveground insect herbivores and phytopathogens by belowground microbiota. National Annual ESA Meeting, San Diego, CA

Kuniyoshi, C. H., Cañas, L. A., and Phelan, P. L. Nutrient-mediated interaction between above- and below-ground herbivores and its effect on the amino acid composition of poinsettias. National Annual ESA Meeting, San Diego, CA

- Uma, D., Phelan, P. L., and Martha Weiss. Spiders' cuticular hydrocarbons mediate prey recognition by mud-dauber wasps. National Annual ESA Meeting, San Diego, CA
- Phelan, P. L., Hogenhout, S. A., and Cañas, L. A. Can fungus gnat attack on poinsettias exacerbate whitefly problems? National Annual ESA Meeting, San Diego, CA
- 2006 Kuniyoshi, C. H., Cañas, L. A., Phelan, P. L., Herms, D. A., Horn, D. J. Nutrient-mediated interaction between above and below-ground herbivores of poinsettias, National Annual ESA Meeting. Indianapolis, IN.
- 2000 Heath, J., R. N. Williams, P. L. Phelan. Evidence for an aggregation pheromone in the rose chafer, *Macrodactylus subspinosus* (Coleoptera: Scarabaeidae). National Annual ESA Meeting. Montréal, Québec, Canada. December 3 - 6, 2000
- 1999 Prokopy, R.J., T. Leskey, and P.L. Phelan. Responses of plum curculio adults to traps. National Annual ESA Meeting, Atlanta, GA.
- Bedet, C. and P. L. Phelan. Soil fertility, plant quality, and insect damage on paired organic and conventional farms. National Annual ESA Meeting, Atlanta, GA.
- Heath, J., P. L. Phelan, and R. Williams. Light intensity: A critical factor in the wind-tunnel flight of the rose chafer and the Japanese beetle. National Annual ESA Meeting, Atlanta, GA.
- 1998 Leskey, T. C., P. L. Phelan, and R. J. Prokopy. Laboratory evaluation of odor attractants for plum curculio. Joint Annual Meeting of Entomological Society of America and American Phytopathological Society, November 8-12, Las Vegas, NV
- Prokopy, R. J., P. L. Phelan, T. C. Leskey, and S. Wright. Field evaluation of visual and odor attractants for plum curculio. Joint Annual Meeting of Entomological Society of America and American Phytopathological Society, November 8-12, Las Vegas, NV
- Heath, J. J., P. L. Phelan, and R. N. Williams. Characterization of the raspberry crown borer, *Pennisetia marginata* (Lepidoptera: Sesiidae), sex attractant pheromone. Joint Annual Meeting of Entomological Society of America and American Phytopathological Society, November 8-12, Las Vegas, NV
- 1997 Bedet, C. and P. L. Phelan. Insect population dynamics and plant nutrient profiles on paired organic and conventional farms. Natl. ESA Conf., Nashville, TN.
- 1996 Bedet, C. and P. L. Phelan. Insect population dynamics on paired organic and conventional farms. Natl. ESA Conf., Louisville, KY.
- Salminen, S.O., E. Freeman, and P. L. Phelan. Interaction of moisture stress, mineral balance, and variety on herbivory. Natl. ESA Conf., Louisville, KY.
- Busch, J. W. and P. L. Phelan. Plant-nutrient-herbivore interactions made transparent with new mixture-regression models. OARDC Annual Conference, Wooster, OH.
- Busch, J. W. and P. L. Phelan. Eine neue Methode -mixture-regression experiments- zur Beschreibung des Einflusses von Nährstoffverhältnissen auf die pflanzliche

Schädlingsresistenz. 50. Deutsche Pflanzenschutztagung, Münster, Germany.

- 1995 Phelan, P. L., M. Berlinger, J. W. Busch. Mixture-modeling: A new approach for studying herbivore response to plant-mineral interactions. Natl. ESA Conf., Las Vegas, NV.
- Busch, J. W. and P. L. Phelan. Plant-nutrient-herbivore interactions made transparent with new mixture-regression models. Natl. ESA Conference, Las Vegas, NV.
- 1994 Busch, J. W. and P. L. Phelan. Einfluß ausgewogener Ernährung der Sojabohne mit sechs Makronährstoffen auf die Anfälligkeit für Spinnmilben und anderer Herbivore. (Influence of balanced soybean nutrition with six macronutrients on susceptibility to spider mites and other herbivores). Poster and abstract, 49. Deutsche Pflanzenschutztagung, Heidelberg (German Plant Protection Conference).
- Busch, J. W. and P. L. Phelan. Mixture-design models to study herbivore response to plant nutrient interactions (poster). National ESA Conference, Dallas, TX..
- 1993 Busch, J.W. and P.L. Phelan. Plant nutrient balance and susceptibility to *Tetranychus urticae* evaluated by systematic variation of six macronutrients. National ESA Conference, Indianapolis, IN.
- 1992 Phelan, P. L. Soil-fertility practices and nonheritable plant resistance: role of soil nutrients and plant chemistry. National ESA Conference, Baltimore, MD.
- Phelan, P. L. Twospotted spider mite pheromones for behavioral disruption. Almond Research Conference, Modesto, CA.
- East, D. A., C. W. Hoy, and P. L. Phelan. Orientation of flying Colorado potato beetles to host plants. National ESA Conference, Baltimore, MD.
- Royalty, R. N., P. L. Phelan, and F. R. Hall. Effects of host-plant damage on male two-spotted spider mite mate-location and guarding behaviors. National ESA Conference, Baltimore, MD.
- 1991 Phelan, P. L., and H. Lin. Chemical characterization of host finding by the strawberry sap beetle: Comparison with other nitidulid species. National ESA Conference, Reno, NV.
- Lin, H., and P. L. Phelan. Correlation of adult host finding and selection and larval performance in two nitidulid species. Nat'l. ESA Conference, Reno, NV.
- Royalty, R. N., P. L. Phelan, and F. R. Hall. Role of vision, chemoreception, and mechanoreception in male *Tetranychus urticae* guarding of quiescent deutonymphs. National ESA Conference, Reno, NV.
- 1990 Phelan, P. L., I. Weatherston, H. A. Yoshida, and T. C. Baker. Broadcast sprays of host-plant volatiles for ovipositional disruption of the navel orangeworm. National ESA Conference, New Orleans, LA.
- Blackmer, J. L., and P. L. Phelan. A comparative study of host location and selection in *Carpophilus* and *Stelidota* (Coleoptera: Nitidulidae). National ESA Conference, New Orleans, LA.

- Lin, H., and P. L. Phelan. Identification of food-odor volatiles attractive to the driedfruit beetle in a wind tunnel. National ESA Conference, New Orleans, LA.
- Royalty, R. N., P. L. Phelan, and F. R. Hall. A quantitative description of male *Tetranychus urticae* response to female sex pheromone. National ESA Conference, New Orleans, LA.
- 1989 Phelan, P. L., R. R. Youngman, I. Weatherston, and T. C. Baker. Broadcast sprays of formulated host odors for ovipositional disruption of the Navel Orangeworm in almonds. Symposium on Semiochemicals and Pest Control. Wageningen, The Netherlands.
- Blackmer, J. L., and P. L. Phelan. Host-orientation behavior in Nitidulidae. National ESA Conference, San Antonio, TX.
- Smith, A. W., G. R. Needham, P. L. Phelan, and R. Page. Detection of cuticular hydrocarbons to determine host suitability by the honey bee tracheal mite. Honey Bee Tracheal Mite Symposium of the American Association of Professional Apiculturists.
- 1988 Phelan, P. L., R. R. Youngman, and T. C. Baker. Formulations of Navel Orangeworm ovipositional attractants for host-finding disruption. Almond Research Conference, Sacramento, CA.
- Blackmer, J. L., and P. L. Phelan. The influence of chemical and visual cues on the flight behavior of *Carpophilus hemipterus* (Coleoptera: Nitidulidae). National ESA Conference, Louisville, KY.
- Youngman, R. R., P. L. Phelan, and T. C. Baker. Attraction of female Navel Orangeworm moths to synthetic fatty acid components of crude almond oil. National ESA Conference, Louisville, KY.
- Tang, J.D., R. E. Charleton, R. A. Jurenka, W. A. Wolf, P. L. Phelan, L. Sreng, W. L. Roelofs. Key steps in the regulation of pheromone biosynthesis by a head factor in moths. National ESA Conference, Louisville, KY.
- Phelan, P.L. The use of plant allelochemicals for reducing pesticidal dependence. International Conference on Sustainable Agriculture, Columbus, OH.
- Blackmer, J. L., and P. L. Phelan. Flight behavior of *Carpophilus hemipterus* (L.) (Coleoptera: Nitidulidae): transition from dispersive to vegetative flight. XVIII International Congress of Entomology, Vancouver, B.C.
- 1987 Phelan, P. L. 1987. Chemical relationship between male courtship pheromone and host volatiles used by *Plodia interpunctella*. Nation. ESA Conference, Boston, MA.
- 1986 Phelan, P. L. A solventless volatile collector for capillary GC analysis of insect and plant odors. National ESA Conference, Reno, NV.
- Phelan, P. L., and T. C. Baker. Development of pheromones and host attractants for almond pest management. Almond Research Conference, Sacramento, CA.

- 1985 Phelan, P. L., and T. C. Baker. Formulation of a female Navel Orangeworm "attracticide" using almond host-volatiles. Nation. ESA Conference, Hollywood, FL.
- Phelan, P. L., and T. C. Baker. Pheromones and almond host attractants. Almond Research Conference, Fresno, CA.
- Phelan, P. L., and T. C. Baker. Male-size-related courtship success and intersexual selection in *Ephestia elutella*. Pacific Branch ESA Conference, Honolulu, HI.
- 1984 Phelan, P. L., and T. C. Baker. On the question of reproductive isolation as a role of courtship in Phycitinae (Pyralidae). National ESA Conference, San Antonio, TX.
- 1983 Phelan, P. L., P. J. Silk, and T. C. Baker. Identification and behavioral characterization of *Ephestia elutella* male pheromone. National ESA Conference, Detroit, MI.
- 1982 Phelan, P. L., and T. C. Baker. Comparative courtship of *Ephestia elutella* and *Ephestia figulilella* (Lep.:Pyralidae). National ESA Conference, Toronto, Ontario, Canada.
- 1980 Phelan, P. L., and J. R. Miller. Avoidance behavior of *Monomorium pharaonis* in response to fatty acid aphid repellents. National ESA Conference, Atlanta, GA.
- 1979 Phelan, P. L., and J. R. Miller. Efficacy of chemical repellents against alighting aphids. National ESA Conference, Denver, CO.

Teaching:

Winter 2009: Entomology 642, Insect Behavior, 4 credit hour lecture course

Summer 2008: Entomology 795, Insect-Plant Interactions, 2 credit hour discussion class team-taught with Dan Herms

Spring 2008: Entomology 840, Chemical Ecology & Metabolomics, 3 credit hour lecture/laboratory

Winter 2007: Entomology 642, Insect Behavior, 4 credit hour lecture course

Winter 2005: Entomology 642, Insect Behavior, 4 credit hour lecture course

Winter 2003: Entomology 642, Insect Behavior, 4 credit hour lecture course team-taught with Dr. Woody Foster

Winter 2000: Entomology 642, Insect Behavior, 4 credit hour lecture course team-taught with Dr. Woody Foster

Fall 1999: Entomology 795, Evolutionary Aspects of Pheromone Communication

Spring 1999: Entomology 840, Insect Chemical Ecology, 3 credit hour lecture/laboratory course taught on odd years.

Winter 1998: Entomology 642, Insect Behavior, 4 credit hour lecture course team-taught with Dr. Woody Foster

Summer 1996: Entomology 611, Field Entomology, 5 credit hour lecture/lab team-taught

with Drs. Horn and Nault

Winter 1996: Entomology 642, Insect Behavior, 4 credit hour lecture course team-taught with Dr. Woody Foster.

Spring 1995: Entomology 693, Methods in Chemical Ecology, 3 credit hour lecture/lab.

Winter 1992: Entomology 642, Insect Behavior, 4 credit hour lecture course team-taught with Dr. Woody Foster.

Spring 1991: Entomology 840, Insect Chemical Ecology, 3 credit hour lecture/laboratory course taught on odd years.

Winter 1990: Entomology 642, Insect Behavior, 4 credit hour lecture course restructured and team-taught with Dr. Woody Foster.

Fall 1989: Entomology 795, Evolution of Ecological Specialization in Insect Herbivory, 1 credit hour

Fall 1988: Entomology 795, Contemporary Issues in Evolutionary Biology, 1 credit hour, team-taught with Dr. Skip Nault.

Spring 1988: Entomology 840, Insect Chemical Ecology, 3 credit hour

Winter 1988: Entomology 642, Insect Behavior, 4 credit hour lecture course team-taught with Dr. Rob Page.

Graduate Advisees:

Paulo Marques, Ph.D. 2004. Evolution of sex pheromone communication systems.

Awards received: PRAXIS/JNICT Multi-year Graduate Fellowship (Portugese National Science Foundation).

Abdulaziz Al-Qarni, Ph.D. 2002. (co-advisor with Brian Smith). Role of pheromones in differential worker acceptance of naturally mated and instrumentally inseminated honeybee queens.

Jeremy Heath, M.S. 2001 (co-advisor with Roger Williams). Thesis: Mechanisms of aggregation in *Macrodactylus subspinosus* and *Popillia japonica* (Coleoptera: Scarabaeidae).

Present position: Ph.D. Research Associate, Iowa State University

Charlotte Bedet, Ph.D. 2000. Thesis research: Soil fertility, plant quality and insect damage on paired organic and conventional farms

Awards received: 1999 DeLong Award, 2nd place poster in 1999 National ESA annual meeting Section Cd Student Competitive, 1998 NCR-SARE planning grant: Linking soil quality, plant health, & animal nutrition on dairy farms through energy and nitrogen balance, \$5000, National ESA Annual meeting Student Competition, Section Cd 2nd-place poster, ESA President's Prize for Best Student Poster at 1996 National Meeting (Section Cd), 1st prize in Agricultural Sciences for Ohio State Graduate Research Forum poster competition, 2nd prize Ohio Valley Entomology student competition

Present position: Postdoctoral researcher, Ohio State University

Johannes Busch, Ph.D. 1996. Thesis: New methods for describing plant and herbivore response to complex multiple-nutrient interactions.

Awards received: 1997 William E. Krauss OARDC Director's Award for the top Ph.D dissertation, Multiple-Year European Agricultural Fellowship, ESA President's Prize for Best Student Poster at 1995 National Meeting (Section Cd), First prize-student poster competition at 1996 Annual OARDC Conference, Second prize-student poster competition at 1995 Annual OARDC Conference, DeLong Travel Award, OSU Dept. of Entomology, 1994, OSU Graduate School Alumni Research Award, 1994.

Present position: Researcher, DuPont Co., France

Reed Royalty, Ph.D. 1992 (Co-advisor with F.R. Hall). Thesis: Factors affecting male twospotted spider mite, Tetranychus urticae Koch (Acari: Tetranychidae), location and guarding of quiescent deutonymphs.

Awards received: OARDC Director's Fellowship, OSU Presidential Fellowship, ESA President's Prize for Student Paper at National Meeting (Section Cd), William E. Krauss Award for the top OARDC Ph.D. dissertation.

Present position: Research Entomologist, Rhone-Poulenc, Research Triangle, NC

Jacquelyn Blackmer, Ph.D. 1991. Thesis: Factors affecting host orientation and selection in Nitidulidae (Coleoptera).

Awards received: Dwight E. DeLong Memorial Award, Graduate Student Alumni Research Award, OSU Presidential Fellowship, OSU Representative for Tropical Biology Program (Costa Rica).

Present position: Assistant Professor, University of Idaho.

Astri Wayandande, Ph.D. 1991 (Co-advisor with L.R. Nault). Thesis: Leafhopper feeding behavior and its role in transmission of maize chlorotic dwarf virus.

Present position: Postdoctoral researcher, Oklahoma State University.

Juliet Tang, Ph.D. candidate and OARDC fellow (Co-advised by D. Denlinger). Thesis research: Control of the virgin-to-mated transition in Lymantria dispar, the gypsy moth. Left Ohio State Sept. 1987 to pursue other interests.

Other graduate students conducting research in my laboratory:

Katie England, Purdue University. 2009-present. Amino acid analysis of poinsettias grown with organic vs. chemical fertility.

Vanessa Muilenburg, Entomology. 2008-present. Amino acid and phenolics analysis of birch mediating bronze birch borer attack.

Nick Teets, Entomology. 2008-present. Metabolomics of cold shock of *Eurosta solidignis*.

Divya Uma, Biology, Georgetown University. 2006-present. Mediation of prey recognition in mud-dauber wasps by spider cuticular hydrocarbons.

Claudia Kuniyoshi, Entomology. 2006-present. Amino acid analysis of poinsettias mediating whitefly feeding.

Karla Medina-Ortega, Entomology. 2007-present. Varietal differences of amino acid content of poinsettias

Rodrigo Chorbajian, Entomology. 2007-2008. Amino acid and sugar analysis of pine needles mediating pine sawfly feeding.

Dan Aruscavage. Food Animal Health Research Program. 2005-2007. Induction of leaf sugars by plant pathogens and effects on *E. coli*.

Joe Raczkowski. EEOB. 2005-2006. Cuticular hydrocarbons of socially parasitic *Lasius*. Smith, Entomology. 1988-1989. Chemical characterization of cuticular hydrocarbons in honeybees.

Julie Todd, Entomology. 1988-1989. Chemical characterization of corn volatiles modulating host-finding in leafhoppers.

Graduate Committees:

Vanessa Muilenburg, PhD candidate, Entomology, General exam & thesis committee

Justin Whitehill, PhD candidate, Plant Pathology, General exam & thesis committee

Philip Otienoburu, PhD candidate, Entomology, General exam & thesis committee

Babak Ebrahimi, PhD candidate, Entomology, General exam & thesis committee

Claudia Kuniyoshi, PhD candidate, Entomology. General exam & thesis committee

Karla Medina-Ortega, PhD candidate, Entomology, General exam & thesis committee

Rodrigo Chorbajian, Ph.D. candidate, Entomology, General exam & thesis committee

Daniel Aruscavage, PhD candidate, Food Science & Tech and FAHRP, Thesis committee

Claudia Kuniyoshi, MS candidate, Entomology. Thesis committee

Adrea Lovejoy, MS candidate, Entomology, Thesis committee

Sarah Mominee, MS candidate, Entomology, Thesis committee

Joe Raczkowski, PhD candidate, EEOB, General exam & thesis committee

Robin Tarter, PhD candidate, EEOB, General exam & thesis committee

Elena Larue, M.S. Entomology, Thesis committee

Corey Yoder, M.S. 2004, Entomology, Thesis committee

Janet Lawrence, Ph.D. 2004, Entomology, General exam and thesis committee

Kevin Miller. M.S. 2004, Entomology, Thesis committee

Ephraim Ragasa, M.S. 2004, Entomology, Thesis committee

John Shea, Ph.D. 2003. EEOB, General exam and thesis committees

Adrienne Smith, M. S. 2002, Entomology, Proficiency committee

Brad Worden, Ph.D. 2000, EEOB, General exam and thesis committees

Young-Soo Kim, Ph.D. 2000. Entomology, General exam and thesis committees.

Sathees Chandra. Ph.D. 2000. Entomology, General exam and thesis committees.

Charles Changa, Ph.D. 2000, Plant Pathology, Final exam, Grad school representative.

Joe Rinehart, Ph.D. Entomology, General exam and thesis committees.

Emmett Glass, Ph.D. Entomology, General exam and thesis committees.

Liming Chen, Ph.D. Agronomy, General exam- Grad school representative.

LeAnn Beanland, Ph.D. Entomology, General exam and thesis committees.

Joao Spotti-Lopez, Ph.D., Entomology, General exam and thesis committees.

Robert Hancock, Ph.D. Entomology, General exam and thesis committees.

David East, Ph.D. OARDC Fellow, Entomology, General exam and thesis committees.

David Shoup, Ph.D., Veterinary Preventative Medicine, General exam- Grad school rep.

Janet Murphy, Ph.D. Entomology, General exam & thesis committees.

Kathleen Curran, Ph.D. Entomology, General examination committee

David Lawson, Ph.D., OARDC Fellow, Horticulture, General exam and thesis committees

Alan Smith, Ph.D., Entomology, Thesis committee.

Julie Todd, Ph.D. recipient, Entomology. General exam & thesis committees.

Robert Hancock, M.S. recipient, Entomology. Thesis committee.

Eric Neff, M.S. recipient, Entomology. Thesis committee.

Undergraduate Research Advisees:

Galen Priest, Biology, Senior Independent Study, The College of Wooster, 2008-2009, Thesis research: Nutritional rewards of extrafloral nectaries to attending ants.

Natalie Jarwyn, Biology, Senior Independent Study, The College of Wooster, 2006-2007, Thesis research: Differential response of weed species to mineral balance

Chafen Clarke, 2006 Summer Research Experience, The College of Wooster, Research: Amino acid & sugar analysis of plants in relation to soil organic matter management.

Richard Barger, 1999 & 2000 Summer Research Experience, The College of Wooster, Research: Field analysis of ovipositional attractants for plum curculio.

Eric Resnis, 1999 Summer Research Experience, The College of Wooster, Research: Chemical identification of ovipositional attractants for plum curculio.

Jill Miller, Biology, 1998 Summer Research Experience, The College of Wooster, Research: Mineral and water balance in expression of resistance to soybean herbivory.

Maggie Mackay, Biology, Senior Independent Study, The College of Wooster, 1997-1998, Thesis research: Role of soil environment on expression of resistance to herbivory and flooding tolerance.

Angela Lucas, 1997 Sophomore Research Experience, The College of Wooster, Research: Mineral balance and ovipositional preference of European corn borer in corn

Doug Weiser, 1997 Sophomore Research Experience, The College of Wooster, Research: Host attractants for the plum curculio

Betsy Beyer, Biology Senior Independent Study, The College of Wooster, 1996-97, Thesis research: European corn borer response to mineral-nutrient balance in maize.

Ellen Freeman, Biology Senior Independent Study, The College of Wooster, 1996-97, Thesis research: Interactive effects of mineral balance, moisture level, and variety on herbivore development on soybeans.

Dan Severs, Chemistry Senior Independent Study, The College of Wooster, 1996-1997, Thesis research: Chemical characterization of a twospotted spider mite pheromone.

Beth Shell, 1996 Sophomore Research Experience Program, The College of Wooster.

Amy Schmitt, 1996 Sophomore Research Experience Program, The College of Wooster. Host attractants for the plum curculio

Félix Cardoza, Research Intern, Zamorano Institute, Tegucigalpa, Honduras.

Julie Heck, 1995 Sophomore Research Experience Program, The College of Wooster.

Betsy Beyer, 1995 Sophomore Research Experience Program, The College of Wooster.

Ellen Freeman, 1995 Sophomore Research Experience Program, The College of Wooster.

Bob Leonard, 1995 Sophomore Research Experience Program, The College of Wooster.

Erin Bisenius, The College of Wooster, Biology Senior Independent Study research. 1993-94. Thesis research: Response of the twospotted spider mite to adult female pheromone

Diana Wolf, The College of Wooster, Biology Senior Independent Study research. 1992-1993. Thesis research: Female choice in *Plodia interpunctella*.

Keri Tallman, 1992 Sophomore Research Experience Program, The College of Wooster. Characterization of fruit volatiles mediating host finding by plum curculio.

Bo-lu Zhou- Relation between corn fertility and European corn borer ovipositional preference, 1992 Sophomore Research Experience Program, The College of Wooster.

Lara Rowley, The College of Wooster, Biology Senior Independent Study research. 1989-1990. Thesis research: Characterization of *Cadra figulilella* male abdominal pheromone.

Kenneth Aldridge, The College of Wooster, Chemistry Senior Independent Study research. 1989-1990. Thesis research: Chemical identification of the male pheromone of *Ostrinia nubilalis*.

Andrew Robertson, The College of Wooster, Sophomore Research Experience Program. Summer 1989.

Amy Lambert, The College of Wooster, Biology Senior Independent Study research. 1988-1989. Thesis research: *Pinus strobus* terpenes as allelopathic agents.

Ann Lukats, The College of Wooster, Chemistry Senior Independent Study research. 1987-1988. Thesis research: Chemical identification of the male wing pheromone of *Cadra figulilella*.

Robert Kinkoph, The College of Wooster, Biology Senior Independent Study research 1986-1987. Thesis research: Chemical identification of the male wing pheromone of *Plodia interpunctella*.

Professional Service:

1999 Panel Member, STAR Fellowship Program, Zoology Panel, Environmental Protection Agency.

1998 Panel Member, STAR Fellowship Program, Zoology Panel, Environmental Protection Agency.

Member, Comprehensive Review Team for University of Arkansas Department of Entomology

1997 Panel Manager, USDA National Research Initiative Competitive Grants, Pest Biology and Management (Entomology & Nematology), Washington, D.C. Responsible for peer review of 208 proposals with requests of \$41 million, dispersed \$6 million in funding.

1996 Panel Member, USDA National Research Initiative Competitive Grants, Pest Biology and Management (Entomology & Nematology), Washington, D.C. Reviewed 27 proposals for funding requests totalling \$5.4 million.

1993 Panel Member, USDA National Research Initiative Competitive Grants, Plant Stress (Entomology & Nematology), Washington, D.C. Reviewed 36 proposals for funding requests totalling \$6.9 million.

Outside examiner for Senior Honors Research, Kenyon College, May 1993

1990 Panel Member, USDA Competitive Research Grants Office, Plant Pest Science (Entomology & Nematology), Washington, D.C. Reviewed 32 proposals for funding requests totalling \$6.0 million.

1988 Panel Member, USDA Competitive Research Grants Office, Biological Stress on Plants (Entomology & Nematology), Washington, D.C. Reviewed 20 proposals for funding requests totalling \$3.0 million.

Ad hoc reviewer for: Ecology, Journal Insect Behavior, Journal Chemical Ecology, Zoological Journal Linnean Society, American Naturalist, Annals of the ESA, Journal Insect Physiol., Journal Economic Entomology, Environmental Entomology, Journal Theoretical Biology, Crop Protection, Entomological experimentalis et applicata, Canadian Entomologist, NSF Ecology Program, NSF Systematics Program, NSF Biological Basis of Behavior Program, USDA-NRI Competitive Research Grants Program, USDA-SBIR Competitive Grants

University service:

College committees:

- OARDC SEEDS Competitive Grants Panel, 2001-2007, Chair 2005-2007
- OARDC SEEDS Graduate Research Competitive Grants Panel Chair, 2003-2006
- OARDC Facilities Committee
- Guiding Coalition Team for Project Reinvent (College of Food, Agr., & Environ. Sci.)
- Ag Faculty Council, Wooster Representative-at-Large, Secretary, 1996-1999 (CFAES)
- Ag Faculty Council Executive Committee, 1997-1999 (CFAES)
- Vice-President's Visiting Expert Program, Chair 1998-1999
- Teaching Committee, 1996-1998 (CFAES)
- BiOhio '98: Curator for Insect Zoo
- BiOhio '96: Curator for Insect Zoo
- Research Policy Advisory Committee, Ag Faculty Council (1991-1994)
- College of Agriculture Committee on Nurturing Diversity (1993-present)
- OARDC Assoc. Director Search Committee (1994-1995)
- OARDC Awards Committee (1994-present)
- OARDC Safety Committee (1994-1995)
- OARDC Director Search Committee (1991-1992)

OARDC Distinguished Faculty Research Award Committee (1992).

OARDC Director's Competitive Graduate Fellowship Committee (1987-1990, Chair
1989-1990)

OARDC Instrumentation Committee (1988-1989)

William E. Krauss Award for Excellence in Research Committee (1987).

Departmental committee service:

Molecular Insect-Plant Interactions Faculty Search Committee Chair, 2007-2008

P&T committee, Chair 1998-2001, 2007-present

Graduate Studies Committee- Chair 2001-2004, Member 1990-present

A Bug's World Committee- 2004-2007

Molecular Entomologist position Search Committee Chair, 1998-1999

OARDC Facilities Committee, Chair

Woody ornamentals entomologist search committee (1996)

Safety Committee (1987-1995, Chair)

Curriculum Committee (1986-1990, 1994-1996)

Computer Advisory Committee (1993-present)

Ad hoc committee for Entomology Core Curriculum (1993)

Planning Committee (1992-present)

Administrative Advisory Committee (1990)

Manuscript Review Committee (1986-1992)

Entomology Seminar Committee (1986-1989, Chair 1989)

OARDC Facilities Advisory Committee (1986-present)

Entomology Social Committee (1986-1989, Chair 1989)

Community Service:

"Insect pheromones and smellology," Teaching Life Sciences Workshop for Elementary Teachers, two presentations, 2007.

Wooster High School Junior Varsity Lacrosse Head Coach, 2004-2007

Northeast Ohio High School Boy's Lacrosse official, 2003-present

Wooster High School Speech & Debate judge, 2003-2008

Middle School Boy's Lacrosse, Head Coach, 2001-present

Boy's Youth Lacrosse Program Head 1999-2001 (traveling team head coach, Summer, Fall, and Winter clinics). State Champions 2001.

Wooster Youth Instructional Football coach 1996-2000

"Mobile Insect Zoo"- take live and pinned arthropods to schools and other youth organizations, talk to students about entomology and provide hands-on experience with arthropods. 1994- 15 presentations, 1995- 16 presentations, 1996- 21 presentations, 1997- 17 presentations, 1998- 6 presentations.

Wooster School District Science Curriculum Advisor, 1998-

1998 Ohio Academy of Sciences State Fair Judge

In-service training of Wayne Co. science teachers- Animal classification