

## Douglas A. Landis

### EDUCATION

Ph.D.	North Carolina State University	1987	Entomology
MS	North Carolina State University	1984	Entomology
BA	Goshen College	1981	Biology

### PROFESSIONAL EXPERIENCE

7/00 to present	Professor, Insect Ecology and Biological Control, Michigan State University, Department of Entomology. Ecology and Evolutionary Biology Program
1/05 to present	Co-Director MSU Invasive Species Initiative
1/98 to 1/03	Biological Control Program Co-Coordinator, Michigan State University
12/00 to 1/03	Associate Director, Center for Integrated Plant Systems, Michigan State University
9/96 to 7/00	Associate Professor: Insect Ecology and Biological Control, Michigan State University, Department of Entomology and Center for Integrated Plant Systems. Ecology and Evolutionary Biology Program
7/94 to 9/96	Associate Professor: Field Crop Entomology, Michigan State University, Department of Entomology and Pesticide Research Center, Ecology and Evolutionary Biology Program
3/88 to 7/94	Assistant Professor: Field Crops Entomology, Michigan State University, Department of Entomology and Pesticide Research Center
5/87 to 3/88	Postdoctoral Research Fellow: North Carolina State University, Dr. F. Gould
1/87 to 5/87	Visiting Assistant Professor: Duke University, School of Forestry and Environmental Studies
1/84 to 12/86	Graduate Research Assistant: North Carolina State University, Department of Entomology
9/81 to 12/83	Graduate Research Assistant: North Carolina State University, Department of Entomology
9/81 to 5/82	Graduate Teaching Assistant: North Carolina State University, Interdepartmental Biological Sciences Program

### AWARDS and DISTINCTIONS

2008	Recognition Award in Entomology, Entomological Society of America, North Central Branch and National-level recipient
2007	Educational Project Award for: <i>Enhancing Beneficial Insects with Native Plants</i> . Board Certified Entomologists of Mid-America
2004-6	Editorial Board, Biological Control
2003	United Nations/SCOPE Global Environmental Outlook Experts Panel
2003-	Editorial Board, <i>Entomologia Experimentalis et Applicata</i>
2002	Michigan Nature Conservancy, Science Advisory panel
2002-5	Associate Editor, <i>BioControl</i> , Journal of the International Organization for Biological Control
2002	Visiting Fellow, Department of Natural Resources and Environment, Victoria, Australia
2001	Entomology Educational Project Award for <i>Natural Enemies in Your Garden</i> . Board Certified Entomologists of Mid-America
2000	Purple Loosestrife Project included in CSREES Natural Resource and Environmental Management, Flagship Programs Database (one of two Michigan projects nominated)
1999	Youth Education/Community Outreach Project Award for <i>The Purple Loosestrife Project at Michigan State University</i> . Board Certified Entomologists of Mid-America
1998	Meridian Township Environmental Commission, Environmental Stewardship Award for the Purple Loosestrife Project at MSU

- 1996 Entomology Educational Project Award for *Midwest Biological Control News*. Board Certified Entomologists of Mid-America
- 1986 NC State Linnaean Games Team. National Competition Second Place
- 1985 NC State Linnaean Games Team. Southeastern Branch Champions
- 1983-4 E.G. Moss Fellowship in Tobacco Research
- 1983 Elected to Phi Kappa Phi
- 1982 Outstanding Graduate Teaching Assistant, Biological Sciences

## PROFESSIONAL ORGANIZATIONS

Ecological Society of America  
 Entomological Society of America  
 International Organization for Biological Control  
 Michigan Entomological Society

## INVITED PRESENTATIONS (past five years)

- 54. Addressing Invasive Species through Research Partnerships. USDA ARS San Joaquin Valley Agricultural Sciences Center. Parlier, CA. Aug. 26, 2004.
- 55. Classical Biological Control in the 21<sup>st</sup> Century. USDA ARS European Biological Control Laboratory, Montpellier, France. Sept. 8, 2004.
- 56. Biodiversity and Biological Control: a win-win situation? D.A. Landis. Symposium on Applied Taxonomy and Biodiversity: Assessment of Natural and Agricultural Ecosystems. Entomological Society of America National Meeting, Salt Lake City, UT Nov. 14-27, 2004.
- 57. Biological Control of Invasive Species. D.A. Landis. Goshen College, Science Speakers Series. Goshen, IN, Dec. 1, 2004.
- 58. Predicting Garlic Mustard Agent Success. **D.A. Landis**, A. Davis, D. Schemske. Biology, Ecology and Management of Garlic Mustard and European Buckthorn. University of Minnesota, Minneapolis/St. Paul, MN. March 17, 2005.
- 59. Biological Control of Invasive Plants and Insects. D.A. Landis. Penn State University, Department of Entomology seminar series. State College, PA. March 18, 2005.
- 60. Use of Native Plants to Conserve Natural Enemies. A.K. Fiedler and **D.A. Landis**. International Symposium on Biological Control of Arthropods. Davos, Switzerland. Sept. 12-16, 2005.
- 61. Biological Control of Invasive Species. D.A. Landis. CABI BioScience, Delemont, Switzerland, Sept. 20, 2005.
- 62. Biological Control of Invasive Species. D.A. Landis. Michigan Chapter of The Nature Conservancy. Lansing, MI. March 2, 2006.
- 63. Biological Control of Invasive Species. D.A. Landis. Michigan Natural Features Inventory. Lansing, MI. March 21, 2006.
- 64. Biological Control of Invasive Species. D.A. Landis. University of Wisconsin, Department of Entomology. Madison, WI. April 21, 2006.
- 65. Biological Control of Invasive Species. D.A. Landis. The Ohio State University, OARDC, Department of Entomology. Wooster, OH. May 16, 2006.

66. Opportunities for Ecological Restoration on the MSU MacCreedy Reserve. D.A. Landis. Hanover Forest Science Series, Dept. of Forestry Michigan State University. Feb. 13, 2007.
67. Landscape Ecology and Sustainable Agriculture. D.A. Landis. Integrated Pest Management Stakeholders Forum for Central Asia Region, Duschanbe, Tajkistan. May 27-29, 2007.
68. Enhancing Beneficial Insect with Flowering Plants. D.A. Landis, A.K. Fiedler and N. Sadiov. Integrated Pest Management Stakeholders Forum for Central Asia Region, Duschanbe, Tajkistan. May 27-29, 2007.
69. Landscape Structure and Arthropod Mediated Ecosystem Services. D.A. Landis. Multitrophic Interactions Workshop. Goettingen, Germany, Mar. 6-7, 2008.
70. Enhancing Beneficial Insects Using Native Plants. D.A. Landis and A.K. Fiedler. SARE's 20<sup>th</sup> Anniversary New American Farm Conference. "Farmscaping to Manage Insects" workshop. Kansas City, MO. Mar. 27, 2008.
71. Biodiversity Implications of Cellulosic Landscapes. D.A. Landis. US Senate and House briefings sponsored by Ecological Society of America. Washington, DC. June 11, 2008
72. Can We Conserve Mitchell's Satyr in the Face of Invasive Species and Global Climate Change? D.A. Landis, C. Hamm and A. Fiedler. XXIII International Congress of Entomology. Durban, South Africa. July 6-11, 2008.
73. Landscape Structure & Arthropod-Mediated Ecosystem Services. D.A. Landis. XXIII International Congress of Entomology. Durban, South Africa. July 6-11, 2008.
74. Biological Control of Soybean Aphid. D.A. Landis. Iowa State University, Dept. of Entomology Fall Seminar Series. Sept. 9, 2008.
75. Harvesting Ecosystem Services from Cellulosic Biofuel Landscapes. D.A. Landis. Graduate Program in Sustainable Agriculture at Iowa State University. Fall Sustainable Agriculture Colloquium. Sept. 10, 2008.
76. Biodiversity and Ecosystem Services in Cellulosic Biofuel Landscapes. D.A. Landis. 2009 Great Lakes Bioenergy Center Retreat, Plenary talk, Oct. 16-17. 2008.
77. Biofuels and Biodiversity: Harvesting Ecosystem Services from Cellulosic Biofuel Landscapes. D.A. Landis. U.S. Department of Energy/Office of Science and the U.S. Department of Agriculture on "Sustainability of Biofuels: State of the Science and Future Directions," Bethesda, Maryland. Oct. 28-29, 2008.
78. Invited discussant. D.A. Landis. GLBRC-EBI workshop on "Linking Biophysical and Economic Models of Biofuel Production and Environmental Impacts." Chicago, Illinois. Nov. 13-14, 2008.
79. Ecological Engineering to Manage Populations of Invasive Pests. S.D. Wratten, M. Jonsson, D.A. Landis. Entomological Society of America, National Meeting. Nov. 16-19, 2008.
80. Soybean aphid as part of a potential four-species invasional meltdown: evaluation and implications for management. GE Heimpel, L Frelich, DA Landis, KR Hopper. Entomological Society of America, National Meeting. Nov. 16-19, 2008.
81. Enhancing beneficial insects using native plants. DA Landis, **A. Fiedler**, N. Saidov. Entomological Society of America, National Meeting. Nov. 16-19, 2008. (Presented by A Fiedler).

## PAPERS/POSTERS/SEMINARS (past five years)

68. Use of Michigan native plants to provide resources to natural enemies. **A. Fiedler** and D. Landis. International Congress of Entomology, Brisbane, Australia. August 15-21, 2004. (poster)
69. Natural enemies affect field distribution and population growth of the soybean aphid *Aphis glycines* Matsumura in Michigan. **A.C. Costamagna**, D.A. Landis. Entomological Society of America National Meeting, Salt Lake City UT 11/04.
70. A comparison of Michigan native and nonnative plants to provide resources to natural enemies. **A.K. Fiedler** and D.A. Landis. Entomological Society of America National Meeting, Salt Lake City UT 11/04. (poster)
71. Evaluating the potential for biological control of garlic mustard in Michigan. **J.A. Evans** and D.A. Landis, Entomological Society of America National Meeting, Salt Lake City UT 11/04. (poster)
72. Identifying and promoting native plant species for use in conservation biological control via habitat management. **A.K. Fiedler**, D.A. Landis. N. Central Branch Ent. Soc. of Am., West Lafayette, Indiana. March 20-23, 2005. (Fiedler invited talk)
73. Generalist predator communities exert top-down control of a new invasive pest, the soybean aphid, *Aphis glycines* Matsumura. **A.C. Costamagna** and D.A. Landis. International Symposium on Biological Control of Arthropods. Davos, Switzerland. Sept. 12-16, 2005.
74. Matrix population models to inform *A. petiolata* biocontrol agent selection. D.A. Landis, A. S. Davis, D. W. Schemske, **J. A. Evans**. USDA-NSF-EPA Invasive Species PI Meeting, USDA - National Research Initiative, Biology of Weedy and Invasive Plants. Washington, D.C. Oct. 17-18 2005. (Poster)
75. Landscape and habitat structure influence soybean aphid biological control. **M.M. Gardiner**, N. Schmidt, M. O'Neal, and D.A. Landis. NCR-125 Arthropod Biological Control & NC-148 Migration & Dispersal of Insects, Joint Meeting, Chicago, IL. Oct. 25-26, 2005.
76. Does intraguild predation limit soybean aphid parasitoid impacts? D.A. Landis, M. Brewer, **A.C. Costamagna**, T. Noma, G. Heimpel, and J. Chacon. USDA NRI Integrative Biology of Arthropods Program Meeting, Fort Lauderdale, Florida. Dec. 14, 2005.
77. Floral characteristics influence natural enemy visitation to native plants. **A.K. Fiedler**, D.A. Landis. Ent. Soc. of Am. Annual Meeting, Ft. Lauderdale, Fla. Dec. 15-18, 2005(student competition talk)
78. Relative impacts of natural enemy taxa on soybean aphid population regulation. **A.C. Costamagna** and D.A. Landis. Entomological Society of America Annual Meeting, Fort Lauderdale, Florida. Dec. 15-18, 2005.
79. Landscape complexity impacts soybean aphid biocontrol. **M.M. Gardiner** and D.A. Landis. Entomological Society of America, Section F Symposium. Fort Lauderdale, FL. Nov. 17-20, 2005.
80. *Harmonia axyridis* as an intraguild predator of soybean aphid natural enemies. **M.M. Gardiner** and D.A. Landis. Entomological Society of America, Section Cd4. Fort Lauderdale, FL. Nov. 17-20, 2005.
81. Landscape structure impacts soybean aphid biological control. **M.M. Gardiner**, N. Schmidt, E. Mueller, J. Chacon, D. A. Landis, M. O'Neal, C. Difonzo, G. Heimpel, C. Gratton, and M. Brewer. Symposium: Ecology and Management of the Soybean Aphid. Entomological Society of America North-Central Branch Meeting. Bloomington IL. Mar. 29, 2006.

82. From “the rich get richer” to biotic resistance: variable relationships between diversity and invasibility. **Evans, J.A.**, D.A. Landis and D.W. Schemske. EPA STAR Graduate Fellowship Conference. Washington, D.C.. September 24-26, 2006. (poster)
83. From “the rich get richer” to biotic resistance: variable relationships between diversity and invasibility. **Evans, J.A.**, D.A. Landis and D.W. Schemske. Ecological Society of America 91<sup>st</sup> Annual Meeting. Memphis, TN. August 7, 2006. (poster)
84. Landscape structure impacts soybean aphid biological control. **M.M. Gardiner**, N. Schmidt, E. Mueller, J. Chacon, D. A. Landis, M. O’Neal, C. Difonzo, G. Heimpel, C. Gratton, and M. Brewer. Oral Presentation at the Entomological Society of America Annual Meeting, Dec. 10-13, 2006. Indianapolis, IN. (*student competition talk, first place*)
85. Evaluation of Michigan native plants and plant characteristics for use in habitat management. **A.K. Fiedler**, and D.A. Landis. Ent. Soc. of Am. Annual Meeting, Dec. 10-13, 2006. Indianapolis, IN. (*student competition talk, honorable mention*)
86. Functional analysis of nonlinearity in garlic mustard demographic parameters. **A.S. Davis**, D. Landis, J. Evans. S. Raghu. NRI Awardees Poster Session. Weed Science Society of America, San Antonio, TX. Feb. 5-10, 2007.
87. Midwest prairie plants for attraction of bees and their integration into fruit farms to provide agro-ecological services. **R. Isaacs**, J.K. Tuell, N.J. Walton, N.J., A.K. Fiedler, and D. Landis. 9th International Pollination Symposium on Plant-Pollinator Relationships - Diversity in Action. Ames, Iowa. (*invited talk*) June 24-28, 2007.
88. Increasing the pest control services provided by flowering plants in agroecosystems. **A.K. Fiedler** and D.A. Landis. Ecological Society of America Annual Meeting, San Jose, CA. (*poster*) July 2007.
89. Enhancing beneficial insects with native plants. **A.K. Fiedler** and D.A. Landis. Wildflower Association of Michigan. East Lansing, MI. March 2007.
90. A database of non-indigenous biota in Michigan. **R. Ahern** and D. Landis. Section Cd. Behavior and Ecology Poster Session, National Meeting of the Entomological Society of American, San Diego, CA. Dec. 9-12. 2007.
91. Impact of Non-Lethal Sampling on Two Species of Butterfly. **C.A. Hamm**, D. Aggrawal, D.A. Landis. Entomological Society of America, San Diego, CA. Dec. 9-13, 2007.
92. Maximizing arthropod mediated ecosystem services in agricultural landscapes. Tuell, J; **JM Woltz**; AK Fiedler; MM Gardiner; DA Landis; and R Isaacs Entomological Society of America, National Meeting. Dec. 9-13, 2007 (poster)
93. Biotic and abiotic factors in the presence and absence of buckthorn in a Michigan prairie fen. **Fiedler, A.K.** and D.A. Landis. The Stewardship Network Conference: the Science, Practice, and Art of Restoring Native Ecosystems, East Lansing, MI. Jan. 25, 2008
94. Maximizing arthropod mediated ecosystem services in agricultural landscapes. Tuell, J; **JM Woltz**; AK Fiedler; MM Gardiner; DA Landis; and R Isaacs. Stewardship Network Conference: the Science Practice and Art of Restoring Native Ecosystems Jan. 25. 2008 (poster)
95. Landscape Perspectives on Biological Control. Michigan Organic Agriculture Reporting Session. **JM Woltz**; MM Gardiner; AK Fiedler; and DA Landis. Mar. 2008
96. Nonindigenous Plants and Insects: inter-related challenges in managed systems. **Ahern, R.G.**, D.A. Landis, and D.W. Schemske. North Central Branch, Entomological Society of America. Mar. 25, 2008.

97. Spread of Nonindigenous Plants in the Landscape: the role of time, habitat availability, and biological traits. **Ahern, R.G.**, D.W. Schemske, A.A. Reznicek, D.A. Landis. Michigan State University Invasive Species Symposium. April 4, 2008
98. Maximizing arthropod mediated ecosystem services in agricultural landscapes. Tuell, J; **JM Woltz**; AK Fiedler; MM Gardiner; DA Landis; and R Isaacs. Invasive Species Symposium. April 4, 2008 (poster)
99. Biotic and abiotic factors in the presence and absence of buckthorn in Michigan prairie fen. **Fiedler, A.K.** and D.A. Landis. Invasive Species Symposium, East Lansing, MI. April 4, 2008 (poster)
100. Modeling in support of the design of landscapes that suppress agricultural pests. **W. van der Werf**, F. Bianchi, N. Schellhorn, H. Baveco, D. Landis, S. Swinton, W. Zhang, M. Gardiner. 5th International Crop Science Congress. Jeju, Korea. April 13-18, 2008.
101. Density dependence in natural plant populations: The role of demographic variance across gradients of population density. **Evans, J.A.**, Davis, A.S., Ragavendran, A., Raghu, S., Landis, D.A., and D.W. Schemske. Ecological Society of America 93<sup>rd</sup> Annual Meeting, Milwaukee, WI. August 8, 2008 (oral paper).
102. Biotic and Abiotic Factors in the Presence and Absence of Glossy Buckthorn in Prairie Fen. **Fiedler, A.K.** and D.A. Landis. 2008. Ecological Society of America 93<sup>rd</sup> Annual Meeting, Milwaukee, WI. August 8, 2008 (oral paper).
103. Landscape spread of nonindigenous plants: the role of time, biological traits, and invasiveness. **Ahern, R.**, D. Schemske, A. Reznicek, and D. Landis. Ecological Society of America 93<sup>rd</sup> Annual Meeting, Milwaukee, WI. August 8, 2008 (oral paper).
104. Water quality and biodiversity impacts of biofuel crops. **Izuaralde, C.**, C. Gratton, A. Thompson and D. Landis. GLBRC-EBI workshop on "Linking Biophysical and Economic Models of Biofuel Production and Environmental Impacts." Chicago, Illinois. Nov. 13-14, 2008.
105. Modeling the effects of landscape change on ecosystem service value of biological pest control. **van der Werf, W.**, D.A. Landis, M.M. Gardiner, A.C. Costamagna, J.M Baveco. F.J.J.A. Bianchi, N.C. Schellhorn. GLBRC-EBI workshop on "Linking Biophysical and Economic Models of Biofuel Production and Environmental Impacts." Chicago, Illinois. Nov. 13-14, 2008.
106. The role of pollinators in restoration of rare habitat plant biodiversity. **A. Fiedler**, DA Landis. Entomological Society of America, National Meeting. Nov. 16-19, 2008.
107. Increasing corn for biofuel production decreases biological control services in agricultural landscapes. **MM Gardiner**, DA Landis, W van der Werf, S Swinton. Entomological Society of America, National Meeting. Nov. 16-19, 2008.

## PUBLICATIONS

### Peer-Reviewed Journals

1. Farrar, R.R. Jr., and D.A. Landis. 1985. An evaluation of a portable geiger counter to trace radiolabeled *Heliothis zea* (Boddie) (Lepidoptera: Noctuidae) larvae in corn and cotton. J. Entomol. Sci. 20: 62-65.

2. Landis, D.A., J.R. Bradley, Jr., and F. Gould. 1987. Behavior and survival of *Heliothis zea* (Lepidoptera; Noctuidae) Prepupae in no-tillage and conventional tillage corn. *Environ. Entomol.* 16: 94-99.
3. Landis, D.A., and F. Gould. 1988. A screening program to detect feeding deterrents for protection of corn seeds/seedlings from southern corn rootworm feeding damage. *J. Entomol. Sci.* 23(3): 201-211.
4. Landis, D.A., 1988. Response of corn seedlings to simulated southern corn rootworm (Coleoptera: Chrysomelidae) feeding damage. *J. Econ. Entomol.* 81(4): 1209-1213.
5. Landis, D.A., 1989. A technique for artificially infesting field plots with southern corn rootworm larvae (Coleoptera: Chrysomelidae). *J. Agric. Entomol.* 6(2): 119-126.
6. Landis, D.A., and F. Gould. 1989 Investigation of the mode(s) of action of several feeding deterrents against the southern corn rootworm, using behavioral bioassays and toxicity testing. *Entomol. Exp. Appl.* 51: 163-174.
7. Gould, F., A. Anderson, D. Landis, and H. Van. Mellaert. 1991. Feeding behavior and growth of *Heliothis virescens* larvae on diets containing *Bacillus thuringiensis* formulations or endotoxins. *Entomol. Exp. Appl.* 58: 199-210.
8. Carlson, J.D., M. E. Whalon, D.A. Landis, and S.H. Gage. 1992. Springtime weather patterns coincident with long distance migration of potato leafhopper into Michigan. *Agric. and Forest. Meteorology.* 59:183-206.
9. Landis, D.A., and M. Haas. 1992. Influence of landscape structure on abundance and within-field distribution of *Ostrinia nubilalis* Hubner (Lepidoptera: Pyralidae) larval parasitoids in Michigan. *Environ. Entomol.* 21: 409-416.
10. Lohr, L., O. Hesterman, J. Kells, D. Landis, and D. Mutch. 1992. Methodology for designing and evaluating comparative cropping systems. *J. Farming Systems Research-Extension.* 3:(1) 105-129.
11. Landis, D.A., C.E. Sorenson, and E.D. Cashatt. 1992. Biology of *Clydonopteron sacculana* (Lepidoptera: Pyralidae) in North Carolina with description of the egg stage. *Annals Entomol. Soc. Am.* 85(5): 596-604.
12. Landis, D.A., E. Levine, M.J. Haas, and V. Meints. 1992. Detection of prolonged diapause of Northern corn rootworm (Coleoptera: Chrysomelidae) in Michigan. *Great Lakes Entomologist.* 25(3): 215-222.
13. Maredia, K.M., S.H. Gage, D.A. Landis, and J.M. Scriber. 1992. Habitat utilization patterns by the seven-spotted lady beetle (Coleoptera: Coccinellidae) in a diverse agricultural landscape. *Biological Control.* 2: 159-165.
14. Maredia, K.M., S.H. Gage, D.A. Landis, and T.M. Wirth. 1992. Visual response of *Coccinella septempunctata* (L.), *Hippodamia parenthesis* (Say), (Coleoptera: Coccinellidae), and *Chrysoperla carnea* (Stephens), (Neuroptera: Chrysopidae) to colors. *Biological Control.* 2:253-256.
15. Maredia, K.M., S.H. Gage, D.A. Landis, and T.M. Wirth. 1992 Ecological observations on predatory Coccinellidae (Coleoptera) in southwestern Michigan. *Great Lakes Entomologist.* 25(4):265-270.
16. Morton, C.A., R.G. Harvey, J.J. Kells, D.A. Landis, W.E. Lueschen, and V.A. Fritz. 1993. In-furrow terbufos: reduced field and sweet corn (*Zea mays*) tolerance to nicosulfuron. *Weed Technol.* 7: 934-939.
17. Walker, E., and D. Landis. 1994. Straw Itch Mite, *Pymotes tritici*, Infestation in brome seed related to acute dermatitis in Michigan granary workers. *Great Lakes Entomologist.* 27:125-128.

18. Morton, C.A., R.G. Harvey, J.L. Wedburg, J.J. Kells, D.A. Landis, and W.E. Lueschen. 1994. Influence of corn rootworm insecticides on the response of field corn (*Zea mays*) to nicosulfuron. *Weed Technol.* 8:289-295.
19. Marino, P.C., and D.A. Landis. 1996. Effect of landscape structure on parasitoid diversity and parasitism in agroecosystems. *Ecol. Applic.* 6(1): 276-284.
20. Roda, A.L., D.A. Landis, M.J. Coggins, E. Spandl, and O.B. Hesterman. 1996. Forage grasses decrease alfalfa weevil (Coleoptera: Curculionidae) damage and larval numbers in alfalfa-grass intercrops. *J. Econ. Entomol.* 89(3): 743-750.
21. Dyer, L.E., and D.A. Landis. 1996. Effects of habitat, temperature and sugar availability on longevity of *Eriborus terebrans* (Gravenhorst) (Hymenoptera: Ichneumonidae). *Environ. Entomol.* 25:1192-1201.
22. Orr, D.B., D.A. Landis, D.R. Mutch, G.V. Manley, S.A. Stuby, and R.L. King. 1997. Ground-cover influence on microclimate and *Trichogramma* augmentation in seed corn production. *Environ. Entomol.* 26: 433-438.
23. Orr, D.B., and D.A. Landis. 1997. Oviposition of European corn borer (Lepidoptera: Pyralidae) and impact of natural enemy populations in transgenic versus isogenic corn. *J. Econ. Entomol.* 90: 905-909.
24. Roda, A.L., D.A. Landis, and J.R. Miller. 1997. Contact-induced emigration of potato leafhopper (Homoptera: Cicadellidae) from alfalfa-forage grass mixtures. *Environ. Entomol.* 26: 754-762.
25. Roda, A.L., D.A. Landis, and M.L. Coggins. 1997. Forage grasses elicit adult potato leafhopper (Homoptera: Cicadellidae) emigration from alfalfa-grass mixtures. *Environ. Entomol.* 26: 745-753.
26. Colunga-Garcia, M., S.H. Gage, and D.A. Landis. 1997. Response of an assemblage of Coccinellidae (Coleoptera) to a diverse agricultural landscape. *Environ. Entomol.* 26: 797-804.
27. Dyer, L.E., and D.A. Landis. 1997. Influence of non-crop habitats on the distribution of *Eriborus terebrans* (Hymenoptera: Ichneumonidae) in cornfields. *Environ. Entomol.* 26: 924-932.
28. Fuller, B.W., M.A. Boetel, D.D. Walgenbach, J.A. Grungler, G.L. Hein, K.J. Jarvi, A.J. Keaster, D.A. Landis, L.J. Meinke, J.D. Oleson, K.R. Ostlie, J.J. Tollefson, J.L. Wedburg, G.E. Wilde, and P.D. Evenson. 1997. Optimization of soil insecticide rates for managing corn rootworm (Coleoptera: Chrysomelidae) larvae in the North Central United States. *J. Econ. Entomol.* 90: 1332-1340.
29. Landis, D.A., and W. van der Werf. 1997. Early-season aphid predation impacts establishment and spread of sugar beet yellows virus in the Netherlands. *Entomophaga* 42: 499-516.
30. Marino, P.C. K.L. Gross, and D.A. Landis. 1997. Post-dispersal weed seed loss in Michigan maize fields. *Agric. Ecosyst. Environ.* 66: 189-96.
31. Garcia-Salazar, C., and D.A. Landis. 1997. Marking *Trichogramma brassicae* Bezdenko (Hymenoptera: Trichogrammatidae) with a fluorescent marker dust and its effect on survival and flight behavior. *J. Econ. Entomol.* 90: 1546-50.
32. Dyer, L.E., and D.A. Landis. 1997. Diurnal behavior of *Eriborus terebrans* (Hymenoptera: Ichneumonidae). *Environ. Entomol.* 26: 1385-1392.
33. Menalled, F.D., P.C. Marino, S.H. Gage, and D.A. Landis. 1999. Does agricultural landscape structure affect parasitism and parasitoid diversity? *Ecological Applications*, 9: 634-641.

34. Menalled, F., J. Lee, and D. Landis. 1999. Manipulating carabid beetle abundance alters prey removal rates in corn fields. *BioControl*. 43: 441-456.
35. Carmona, D., F. Menalled, and D. Landis. 1999. Northern Field Cricket, *Gryllus pennsylvanicus* Burmeister (Orthoptera: Gryllidae): Weed seed predation and within-field activity-density. *J. Econ. Entomol.* 92: 825-29.
36. Sebolt, D.C., and D.A. Landis. 1999. Gypsy moth (*Lymantria dispar* L.) feeding on purple loosestrife (*Lythrum salicaria* L.) in Michigan. *Great Lakes Entomologist*. 32: 75-78.
37. Carmona, D.M., and D.A. Landis. 1999. Influence of refuge habitats and covers crops on seasonal activity-density of ground beetles (Coleoptera: Carabidae) in field crops. *Environ. Entomol.* 28: 1145-53.
38. Menalled, F., P. Marino, K. Renner, and D. Landis. 2000. Post-dispersal weed seed predation in crop fields as a function of agricultural landscape structure. *Agric. Ecosys. and Environ.* 77:193-207.
39. Kaufman, L.N., and D.A. Landis. 2000. Host-specificity testing of *Galerucella californiensis* L. (Coleoptera: Chrysomelidae) versus Michigan native and ornamental plants. *Biological Control* 18: 157-64.
40. Lee, J.C., F.D. Menalled, and D.A. Landis. 2001. Refuge habitats modify impact of insecticide disturbance on carabid beetle communities. *J. Appl. Ecol.* 38: 472-483
41. Blossey, B., R. Casagrande, L. Tewksbury, D.A. Landis, R. Wiedenmann, and D.R. Ellis. 2001. Non-target feeding of leaf-beetles introduced to control purple loosestrife (*Lythrum salicaria*). *Natural Areas Journal*. 21: 368-377.
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#### **Extension Bulletins (past five years)**

52. Fiedler, A., J. Tuell, R. Isaacs, D. Landis, 2007. Attracting Beneficial Insects with Native Flowering Plants. Michigan State University Extension Bulletin E-2973. 6 pp.
53. Landis, D., J. Soule, L. Gut, J. Smeenk. 2007. Agricultural Landscapes and Ecologically Based Farming Systems. pp. 13-31 *In*: Deming, S.R., L. Johnson, D. Lehnert, D.R. Mutch, L. Probyn, K. Renner, J. Smeenk, L. Worthington eds. Building a Sustainable Future: ecologically based farming systems. Extension Bulletin E-2983. Michigan State University, E. Lansing MI 140 pp.
54. Brewer, M.I., A. Fiedler, E. Grafius, T. Harrigan, R. Isaacs, M. Kaiser, D. Landis, S. Langley, T. Martin, D. Mutch, M. Ngouajio, S. Snapp, J. Tuell. 2007. IPM Benefits of Managing Field Borders, Cover Crops and Other Noncrop Vegetation. pp. 32-39 *In*: Deming, S.R., L. Johnson, D. Lehnert, D.R. Mutch, L. Probyn, K. Renner, J. Smeenk, L. Worthington eds. Building a Sustainable Future: ecologically based farming systems. Extension Bulletin E-2983. Michigan State University, E. Lansing MI 140 pp.

#### **Other Miscellaneous Publications (past five years)**

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157. Enhancing Beneficial Insects with Native Plants. A. Fiedler and D.A Landis. MSU Field Crop CAT Alert. June 23, 2005.
158. Japanese Stilt Grass Alert. D. Landis. MSU Landscape CAT Alert. May 26, 2006.
159. Update on Garlic Mustard Biological Control. J. Evans and D. Landis. MSU Landscape CAT Alert. May 18, 2007.
160. Keep an Eye Out for Swallow-wort Infestations. D. Landis. MSU Landscape CAT Alert. Sept. 21, 2007.

### **Program Coverage (past five years)**

58. Purple Loosestrife Project: Michigan Sea Grant College Program. *Upwellings* 27(1): 11. 2004.
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61. Are Lady Bugs Still Buggin' You? *Courier-Leader & Z-Wire.com* April 4, 2004 (website credit)
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72. Hungry Beetle puts Balance Back in Nature. R. Finneran. *MSU Landscape CAT Alert*. Aug. 24, 2007.
73. Biological Control of Purple Loosestrife. Live radio interview with Lori Moore on WKZO 590 AM August 30, 2007.
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78. Repelling Invaders-War of the Species. *Detroit Free Press*. November 15, 2007.
79. The Invasive Species Initiative. *Green Ink*, Newsletter of the Environmental Science and Policy Program at MSU. Vol. 3(1) 7. Dec. 2007.
80. Enhancing Beneficial Insects. *News Talk 760 WJR* radio interview, *The Gardening Show* with Dean Krauskopf. 5/10/08.

81. Acres of Trails Open to Public Nearly Year-Round. (Article on MSU MacCready Reserve) Jackson Citizen Patriot. Sept. 8, 2008

## **GRANT SUPPORT**

### *Pending*

### *Current*

The Michigan Invasive Species Information Network (MISIN): engaging stakeholders in invasive species detection and management. Co-PI's Douglas Landis, Robert Ahern, Amos Ziegler, Phyllis Higman, Edward Schools. Sustainable Michigan Endowed Project 2008 Integrative Project Grants (IPG) program, \$75,000 3 yr.

Southeast Michigan Prairie Fen Initiative Collaborative. D. Landis, A. Fiedler, D. Pearsall, P. Doran. National Fish and Wildlife Foundation, 2007 Great Lakes Watershed Restoration Program. \$100,000 7/1/08-6/30/09 (Landis portion \$60,000).

Integrating Ecological and Genomic Approaches Towards Sustainable Biomass Production in Switchgrass. D.W. Schemske, Shin-Han Shiu, D.A. Landis. MSU Rackham Foundation. \$75,000.

Great Lakes Bioenergy Research Center. T.J. Donohue PI. US Department of Energy, GTL Bioenergy Research Center program. \$125,000,000. 9/07-8/12: Thrust 4. Development of a Sustainable Bioenergy Economy, Objective 4.4. Biodiversity Responses (Biodiversity team leaders: D.A. Landis, D. Schemske) \$1,656,774. 9/07-8/12

Maximizing Arthropod-Mediated Ecosystem Services in Agricultural Landscapes. R. Isaacs, D. Landis, J. Tuell, A. Fiedler, M Gardiner. USDA NRI Integrative Biology of Arthropods and Nematodes. \$342,000. 9/07-8/11.

Ecologically-Based Participatory and Collaborative Research and Capacity Building in IPM in Central Asia Region. K. Maredia et al. USAID IPM CSRP. \$700,000. 2006-10. (Landis Portion \$140,000)

The KBS LTER Project: Long-Term Ecological Research in Row Crop Agriculture. G.P. Robertson, S.H. Gage, K.L. Gross, S.K. Hamilton, D.A. Landis, S.M. Swinton. NSF DEB-Ecological Biology Cluster. \$4,920,000. 12/04-11/10. (Landis Portion \$210,000).

### *Completed*

2007 MSU MacCready Reserve Restoration Education and Outreach. D. Landis. MSU Office of Land Management. \$3,240 3/07-2-08.

Invasive Species Policy, Ecology and Management. D.A. Landis and D. Schemske. MSU Environmental Research Initiative. \$100,000. 7/06-6/08 (Landis portion \$85,000)

Using Demographic Models to Assess Biocontrol of an Invasive Plant. D.A. Landis, D.W. Schemske, A.S. Davis. USDA NRI Biology of Weedy and Invasive Plants. \$325,000. 11/05-10/08 (Landis portion 325,000).

Soybean Aphid in the North Central Region: Implementing IPM at the Landscape Scale. D.A. Landis, C.D. DiFonzo, M.J. Brewer, S.M. Swinton. USDA RAMP. \$1,505,050. 1/05-12/08. (Landis Portion \$168,886).

Utilizing Native Plants to Enhance Insect and Weed Biological Control. D.A. Landis and W. Schneider. 2003 NC-SARE \$150,000. 7/04-8/08 (Landis portion \$129,600)

Delivery of Information on Native Plants to Enhance Beneficial Insect Activity in Michigan Farms. R. Isaacs, J. Tuell, A. Fiedler, D. Landis, J. Landis, W. Schneider, N. Rothwell, R. Rant, G. Vogel. MSU GREEN 2006. \$9,135. 4/06-3/07. (Landis portion \$4,567 to Anna Fiedler).

Southeast Michigan Headwaters Restoration Collaborative. The Nature Conservancy (D. Landis MSU collaborator). National Fish and Wildlife Foundation, 2005 Great Lakes Watershed Restoration Program. \$75,000 4/1/06-9/20/07 (Landis portion 0, cooperator).

MSU Invasive Species Website. D. Landis. MSU IPM Program \$5,000 3/31/05-8/1/06 (Landis portion 5,000).

Does Intraguild Predation Limit Soybean Aphid Parasitoid Impacts? D. Landis, M. Brewer, A. Costamagna and G. Heimpel. USDA NRI Integrative Biology of Arthropods and Nematodes. \$388,189 3 y requested, \$205,000 for 2 y granted. 1/05-12/06 (Landis portion \$148,650).

Integrating Alternative Approaches to Control Key Pest in Eastern Vineyards. R. Isaacs, D. Landis, J. Wise. USDA PMAP \$138,430. 9/04-8/06. (Landis portion 0).

Natural Control of Soybean Aphid by Parasitoids, Predatory Flies, and Pathogenic Fungi and their Integration into Soybean Crop Management. M. Brewer, T. Noma, D. Landis. MSU GREEN FY 2004 \$75,000. 4/04-3/06. (Landis portion \$0).

Assessing Native Plants to Enhance Sustainable Agriculture. D.A. Landis, A. Fiedler and R. Isaacs. MSU Sustainable Ag. Special Grant 2003. \$55,490. 5/04-4/06. (Landis portion \$55,490).

Integrating New Natural Enemies into Soybean Aphid Biological Control. M.J. Brewer, D.A. Landis, C. DiFonzo. USDA CSREES NC IPM. \$99,997 5/04-4/06 (Landis Portion \$47,429)

Evaluating the Potential for Biological Control of Garlic Mustard in Michigan. D. Landis and D. Schemske. Michigan Department of Natural Resources Wildlife Grants Program. \$48,159. 4/04-9/06. (Landis portion \$48,159).

Interaction of Predators and Parasitoids in Soybean Aphid Biological Control. D.A. Landis, A. Costamagna. M. O'Neal, M. Brewer. USDA-APHIS-PPQ NBCI Cooperative Agreement: 8/03-7/05. \$25,000 (Landis portion \$25,000).

Evaluating the Potential for Biological Control of Garlic Mustard in Michigan. D. Landis and D. Schemske. Michigan Department of Military and Veterans Affairs. \$32,151. 4/03-9/05. (Landis portion \$32,151).

Impact of Purple Loosestrife Biological Control on Wetland Plant Communities. D. Landis. Michigan Department of Natural Resources Wildlife Grants Program. \$49,980. 4/03-9/05. (Landis portion \$49,980).

Do Predation and Host Plant Quality Interact to Regulate Soybean Aphid? D. Landis, K. Thelen, C. DiFonzo, M. O'Neal, A. Costamagna. MSU Sustainable Ag. Special Grant 2003. \$54,000. 5/03-4/05. (Landis portion \$54,000).

Long-Term Ecological Research in Field Crop Ecosystems. NSF DEB Long-Term Studies. \$4.2 M (Landis portion \$25,000)

Evaluating the Potential for Biological Control of Garlic Mustard on two Nature Conservancy Sites as part of a Statewide Program. D. Landis. The Nature Conservancy, Michigan Chapter. \$3,000. 7/03-6/04. (Landis portion \$3,000)

Developing Educational Tools to Facilitate Systems Thinking in Sustainable Agriculture. A. Heggenstaller, M. Liebman, F. Menalled. SARE Graduate Student Research Grants Program. \$9,896. 5/03-4/04. (Landis cooperator).

Garlic Mustard in Michigan Website D.A. Landis, M. Brewer, J.N. Landis, D.C. Sebolt. Michigan Dept. of Agriculture, Pesticide and Plant Pest Management Division. \$2,938 10/02-9/03 (Landis portion \$2,938)

Modeling Soybean Aphid and Natural Enemy Interactions to Improve Biological Control. D.A. Landis, D.R. Prokrym, W. van der Werf, F. Bianchi. USDA NBCI Implementation Grant Program. \$15,000. 7/02-6/03 (Landis portion \$10,000)

Indigenous Predators in Soybean Aphid Biological Control. D.A. Landis, T.B. Fox and A. Costamagna. USDA-APHIS-PPQ NBCI Cooperative Agreement. \$ 25,000. 7/02-6/03. (Landis portion \$25,000)

Assessing Weed Seed Decay by Soil Microorganisms. K.A. Renner, D.A. Landis, D.D. Buhler. USDA CSREES Special Grants Program: Sustainable Agriculture 2002: Ecological Integration of Soil, Plants and Animals. \$59,437. 6/02-5/03 (Landis portion \$29,718)

Is Corn Phenology Causing Crop Rotation's Failure to Manage Western Corn Rootworm? D. Landis, M. O'Neal, J. Miller, C. DiFonzo. USDA-NRI Entomology-Nematology. \$156,000. 9/01-8/03. (Landis portion \$156,000)

Assessing the Relationships Among Cover Crops, Weed Seed Predators and Weed Communities. D.A. Landis, F.D. Menalled, K.A. Renner, D.R. Mutch, L.E. Dyer. USDA CSREES North Central IPM. \$98,898. 4/01-3/03. (Landis portion \$49,449)

Weed Seed Predation and Decay in Cropping Systems that Include Cover Crops. K. Renner, D. Landis, D. Mutch, D. Buhler, F. Menalled. USDA CSREES Special Grants Program: Sustainable Agriculture. \$53,978. 4/01-3/03. (Landis portion \$26,989)

Achieving Sustainable Grape Production in Michigan: Reduced Chemical Inputs by Establishing Thresholds for Key Pests. R. Isaacs, S. Howell, A. Schilder, C. Edson, D. Landis, J. Andresen, G. Van Ee, R. Ledebuhr. MSU GREEN 2000. \$225,000. 3/00-2/03. (Landis portion \$0 cooperator)

Education and Long-Term Monitoring of Purple Loosestrife Biological Control in Michigan: 2001-2002. D. A. Landis and M. Klepinger. Michigan Department of Agriculture, Pesticide and Plant Pest Management Division. \$10,000. 10/01-9/02. (Landis portion \$10,000)

Improving Accuracy and Access to Results of Purple Loosestrife Management in Michigan Wetlands. M. Klepinger and D. Landis. MI Dept. of Natural Resources-Wildlife Division, Natural Heritage Nongame Wildlife Grants program. \$9,413 1/02-12/02. (Landis portion \$0 cooperator)

Biological Control of Soybean Aphid, *Aphis glycines* Matsumura (Homoptera: Aphididae): The Impact of Indigenous Natural Enemies. D.A. Landis, T. Fox, S. Thiem, C. DiFonzo. USDA APHIS Soybean Aphid Biological Control \$45,000. 7/01-3/02.

The Niles Laboratory Partnership: Advancing Biological Control for Michigan's Plant Industries. MSU-GREEN. \$40,000. 4/01-3/02.

Use of Microelectronics to Develop an Advanced Harmonic Radar System for Tracking Insects in Agroecosystems. D. Landis, E. Rothwell, D. Reinhard, L. Kempel, M. O'Neal, J. Miller. MSU GREEN \$35,000. 4/01-3/02.

Integrating Biological, Chemical and Pheromone Control of Obliquebanded Leafroller in Michigan Apple Production Systems. D. Landis, L. Gut, T. Wells-Wilkinson, W. Kauffman. USDA Special Fruit Grant. \$14,000. 4/01-3/02.

Biorational Alternatives to Chlorpyrifos for Management of Onion Maggot in Michigan Onions. E. Grafius, M. Kortier-Davis, D. Landis. MSU-GREEN. \$29,500. 4/01-3/02.

Can Refuges Moderate Disturbance in Annual Crops? D.A. Landis, K.A. Renner and F.D. Menalled. USDA NRICGP Biologically Based Pest Management. \$162,161. 9/99-12/01.

Biological Control of Purple Loosestrife by 4-H Volunteers. Sea Grant ANS Outreach Proposal. \$68,959. Collaborator. 9/99- 8/01.

Documenting Success in Biological Control of Purple Loosestrife in Michigan. . D. A. Landis and M. Klepinger. Michigan Department of Agriculture, Pesticide and Plant Pest Management Division. \$15,000. 10/00–9/01.

Sustainable Agriculture: Ecological Integration of Soil, Plants and Animals. R. Harwood. USDA CSREES Special Grants Program. \$416,297 4/00-3/02 Landis Portion \$60,000.

Developing a Website for the North Central Regional Committee-125, Arthropod Biological Control, USDA NBCI Facilitation Grants Program. \$2,500. 1yr. 2000.

Biological Control of Oblique Banded Leafroller in Michigan Apple Production: Integrating Pheromone Disruption and Novel Insecticides. D. Landis, L. Gut and W. Kauffman. MSU GREEN 2000. \$30,000 1yr.

Western Corn Rootworm in First-Year Corn: Preparing Growers for a New Threat. C. DiFonzo. D.A. Landis, M. O’Neal. MSU GREEN 2000. \$18,200 1 yr.

Biorational Alternatives to Chlorpyrifos for Management of Onion Maggot in Michigan Onions.” E.J. Grafius, M. Kortier-Davis and D.A. Landis. MSU GREEN 2000. \$36,000 1yr.

Managing Your Farm to Reduce Weed Infestations. F. Menalled, K. Renner, D. Landis. MSU GREEN 2000. \$6,000 1yr. 2000

Evaluating the Efficacy of Rotated Corn in the Face of Changing Corn Rootworm Behavior. Corn Marketing Program of Michigan. \$7,500. C. DiFonzo, M. O’Neal, D. Landis. 2000.

2000 Biological Control of Purple Loosestrife in Michigan. D.A. Landis and M. Klepinger.	
Michigan Department of Natural Resources-Wildlife Division	\$30,000
Michigan Department of Natural Resources-Non-Game Fund	\$10,000
Michigan Department of Agriculture, Pesticide & Plant Pest Manag. Div.	<u>\$15,000</u>
Total FY-00	\$55,000

Biological Control Program Infrastructure within the Center for Integrated Plant Systems. Whalon et al. MSU GREEN proposal to MAES Director’s Advisory Team (DAT). Biocontrol portion \$45,000. 1999.

Where do the Weed Seeds Go? Understanding Weed Seed Banks and Weed Seed Predation: An Extension and Education Program. K.A. Renner, F.D. Menalled and D.A. Landis. MSU GREEN Extension/Education Proposal 1998. \$11,611 1 yr.

Biological Control of Oblique Banded Leafroller in Michigan Apple Production: Integrating Pheromone Disruption and Novel Insecticides. D. Landis, L. Gut and W. Kaufman. MSU GREEN Applied Research/Demonstration Proposal 1998. \$30,000 1yr.

Biorational Alternatives to Chlorpyrifos for Management of Onion Maggot in Michigan Onions. E.J. Grafius, M. Kortier-Davis and D.A. Landis. MSU GREEN Applied Research/Demonstration Proposal 1998. \$36,000 1yr.

Western Corn Rootworm in First-Year Corn: Preparing Growers for a New Threat. C. DiFonzo. D.A. Landis, M. O’Neal. MSU GREEN Applied Research/Demonstration Proposal 1998. \$20,000 1 yr.

Rotation-Resistant Corn Rootworms: Thresholds and Movement in Michigan Corn Production. C. DiFonzo, D. Landis and M. O’Neal. Michigan Corn Marketing Program. \$8,500. 1998.

Biological Control in Field Crops: A Short Course for Agricultural Professionals. D.A. Landis and F.D. Menalled. 1998 Field Crop AOE SARE Grant. \$5,000 1 yr.

Building Agroecological Infrastructure: Relationships between Habitat Management, Seed Predation and Weed Community Dynamics. D.A. Landis, K.A. Renner, F.D. Menalled and K. L. Gross. USDA Sustainable Agriculture Special Grant. \$60,000 2 yr. 1998.

Demonstration/Research of Integrated Viticultural Production Strategies for Michigan Grape Growers. Edson et al. Michigan Grape and Wine Industry Council. \$18,348. Collaborator. 1998.

Influence of Perennial Habitats Including High-Value Woody Species on Natural Enemies of Crop Pests. D.A. Landis, F.D. Menalled. Integrated Pest Management Grants Program, North Central Region. \$62,862. 4 yr. 1995-8.

1999 Biological Control of Purple Loosestrife in Michigan. D.A. Landis and M. Klepinger.

MSU Extension	\$10,000
Michigan Agricultural Experiment Station	\$20,000
MSU College of Natural Science, Div. of Science and Math. Educ.	\$2,000
USDA APHIS National Biological Control Institute	\$11,600
Michigan Department of Natural Resources-Wildlife Division	\$30,000
Michigan Department of Natural Resources-Non-Game Fund	\$10,000
Michigan Department of Agriculture, Pesticide & Plant Pest Manag. Div.	<u>\$15,000</u>
Total FY-99	\$98,600

Biological Control Program at Michigan State University:1998. D.A. Landis. MAES, MSUE \$30,000. 1 yr.

Purple Loosestrife Locator Cards. M. Klepinger and D. Landis, MDEQ. \$7,500. 1 yr. 1998.

The Purple Loosestrife Project at Michigan State University: Implementation. D.A. Landis and M. Klepinger. USDA National Biological Control Institute. \$11,700. 1 yr. 1998.

The Purple Loosestrife Project at Michigan State University: Facilitation. M. Klepinger and D.A. Landis. USDA National Biological Control Institute. \$8,700. 1 yr. 1998.

1998 Biological Control of Purple Loosestrife in Michigan. D.A. Landis and M. Klepinger.

MSU Extension	\$10,000
Michigan Agricultural Experiment Station	\$20,000
MSU Department of Entomology	\$9,066
MSU College of Natural Science, Div. of Science and Math. Educ.	\$9,066
Michigan Department of Natural Resources-Wildlife Division	\$30,000
Michigan Department of Natural Resources-Non-Game Fund	\$9,998
Michigan Department of Agriculture, Pesticide & Plant Pest Manag. Div.	<u>\$15,000</u>
Total FY-98	\$103,130

Experiential Learning Using Biological Control of Purple Loosestrife. M. Klepinger and D. Landis. US EPA Environmental Education Program. \$20,500. 1 yr. 1998.

Incorporating Biological Control into Extension IPM Programming: Midwest Biological Control News. D. Mahr, D. Landis, L. Kinkel, S. Mahr, J. Parke, C. Sadoff, R. Wright. Integrated Pest Management Grants Program, North Central Region. \$19,588. 1yr. 1998.

Vegetative Barriers to Increase Biological Pest Control and Prevent Soil Erosion in Agricultural Landscapes. D.A. Landis and L.E. Dyer. Great Lakes Commission, Great Lakes Program for Soil Erosion and Sediment Control. \$14,860. 1 yr. 1997.

Ecological Principals of Habitat Management for Weed and Insect Biological Control. D. Landis, P. Marino, K. Renner and R. Fogg. USDA SARE . \$94,923. 2 yr. 1995-6.

Trichogramma Non-Target Impacts: A Model for Biological Control Risk Assessment. D. Landis and D. Orr. USDA CSRS NRI. \$120,000. 2 yr. 1995-7.

1997 Biological Control of Purple Loosestrife in Michigan. D.A. Landis and M. Klepinger.	
MSU Department of Entomology	\$9,066
MSU College of Natural Science, Div. of Science and Math. Educ.	\$15,066
MSU Department of Fisheries and Wildlife, Michigan Sea Grant	\$10,000
MSU Extension	\$10,000
Michigan Agricultural Experiment Station	\$10,000
Michigan Department of Agriculture, Pesticide & Plant Pest Manag. Div.	<u>\$20,000</u>
Total FY-97	\$74,132

Potato/Seed Corn Rotation Systems for Management of Colorado Potato Beetle and Seed Corn Pests. E. Grafius, D. Landis and J. Kells. NCS-3 IPM. \$69,839. 2 yr. 1997

Biological Control Information Delivery to Extension Personnel and Their Clientele. D. Mahr, D. Landis, R. Wright, C. Sadoff. USDA Extension Service. MSU subcontract \$7,200. 3 yr. 1994-6

Alfalfa-Grass Intercrops: A Preventative Pest Management System for Insects and Weeds. O. Hesterman, D. Landis and J. Kells. NCS-3 IPM. \$74,010. 3 yr. 1993-5.

Evaluation of a Biological Control Program for Suppression of European Corn Borer in Midwestern Seed Corn Production. Pioneer Hi-Bred International. \$16,373. 3 yr. (Cooperator) 1993-5.

Investigations on Control of Insects in Field Crops 1995. D. Landis. Industry Support. \$32,000.

Parasitoid Community Ecology in Agricultural Landscapes. D. Landis. FY95 LTER Supplemental Requests, NSF LTER Program. \$5,000. 1 yr.

Investigations on Control of Insects in Field Crops 1994. D. Landis. Industry Support. \$34,750.

Influence of Transgenic Bt Maize on Predation and Parasitism of European Corn Borer. D. Landis and D. Orr. Ciba Seeds. \$10,000. 1 yr. 1993.

Effect of Landscape Structural Complexity on Parasitoid Community Richness and Effectiveness. D. Landis and P. Marino. KBS LTER (NSF) \$5,939. 1 yr. 1993.

Demonstration of Reduced Insecticide Inputs in Field Crops. D. Landis. USDA Saginaw Bay Water Quality Demonstration Project, MI CES Sub-Project. \$5,950. 1993.

A Landscape Ecological Perspective on Insect and Weed Population Regulation in Low-Input and Conventional Systems. D. Landis, K. Gross, R. Fogg. North Central Region LISA Program. \$75,000. 2 yr. 1993-4.

Investigations on Control of Insects in Field Crops 1993. D. Landis. Industry Support. \$27,200.

An Assessment of Episodic Atmospheric Events that Regulate Movement of Economically Important Migratory Pests: A Preventative Pest Management Strategy Using the Potato Leafhopper. NCS-3-IPM. (Cooperator) 3 yr. 1992-5

Evaluation of Grasses and Grass-Legume Mixtures for Sustainable and Efficient Forage Production in Michigan. W. Moline and D. Landis. MSU Agr. Exp. Sta. \$152,700. 3 yr. 1992-5

Development of Systems to Meet Environmental Constraints of Cash Crop Production In the 1990's. MSU Agr. Exp. Sta. (Cooperator) \$161,000. 3 yr. 1992-5

Insect Management in Michigan Field Corn: A Survey of Corn Producers. D. Landis and S. Swinton. 1992.  
 Michigan Department of Agriculture, Pesticide and Plant Pest Management Division. \$6,000.  
 Michigan State University, Agricultural and Natural Resources Extension. \$3,000.  
 Department of Entomology, Michigan State University. \$3,000.  
 Department of Agricultural Economics, Michigan State University. \$2,000.

Demonstration of Reduced Insecticide Inputs in Field Crops. D. Landis. USDA Saginaw Bay Water Quality Demonstration Project, MI CES Sub-Project. \$6,000. 1992.

Influence of Landscape Structure on Host-Parasitoid Interactions. Pesticide Research Center Enhancement Grant. D. Landis and L. Dyer. \$24,000. 2 yr. 1992-3.

Investigations on Control of Insects in Field Crops 1992. D. Landis. Industry Support. \$46,150.

Application of Spatial Analysis Technology to Assess Effects of Landscape Structural Heterogeneity on Beneficial Insects: An Approach Toward the Design of Pest-Stable Agricultural Systems. D. Landis and S. Gage. Rackham Endowment Fund Invited Proposal. \$51,000. 1991.

Development of a Computer-Enhanced Video Module to Teach Temporal and Spatial Dynamics of Biological Population Processes. MSU Computers in Education Committee. (Cooperator) \$14,688. 1991.

Integrated Pest Management Shortcourse for Agribusiness in Michigan. J. Kells, K. Renner, D. Mutch, D. Landis, P. Hart, R. Wilkenson. MSU AULEG. \$14,250. 1991.

Investigations on Control of Insects in Field Crops 1991. D. Landis. Industry Support. \$31,500.

Portable Electronic Data Logging System for Temperature, Humidity and Soil Moisture Monitoring. Pesticide Research Center Year-End Equipment Grant. D. Landis. \$4,000. 1990.

Investigations on Control of Insects in Field Crops 1990. D. Landis. Industry Support. \$26,500.

Grower-Oriented IPM Fact Sheets. MECP. M. Naglekirk and D. Landis. \$6,270. 1990.

Decision Support Systems for Michigan Field Crops. D. Landis. Integrated Decision Support System (IDSS) Working Group. July 1989-June 1990, \$6,150.

Linking Natural Enemies and Landscape Structure. D. Landis. MSU AURIG, \$7,500. 1989.

Influence of Landscape Structure on the Distribution Abundance and Movement of Insects. S. Gage, D. Landis and D. Haynes. NSF Ecology-1 Panel. \$100,000. 1989-90.

Demonstrating Management of Potato Leafhopper in Forages through Monitoring, Cutting Practices and the Use of Grass/Legume Mixtures. D. Landis. MECP IPM Expert Team. \$29,500. 1989.

Investigations on Control of Insects in Field Crops 1989. D. Landis. Industry Support. \$34,100.

Decision Support Systems for Michigan Field Crops. D. Landis. Integrated Decision Support System (IDSS) Working Group. July 1988-June 1989, \$6,000.

Investigations on Control of Insects in Field Crops 1988. D. Landis. Industry Support. \$16,000.

## **VISITING SCIENTISTS**

Dr. Wopke van der Werf, University of Wageningen, Wageningen, The Netherlands. August 11-17, 1997  
 Dr. Amalia Perez Valdez, University of Chapingo, Chapingo, Mexico. June-August 1998

Karolina Asman, Agricultural University of Sweden, Uppsala, Sweden. January-April 2000  
Dora Carmona, INTA, Argentina. June 16-July 26, 2000  
Dr. Paula Westerman, University of Wageningen, Wageningen, The Netherlands. August 13-27, 2000  
Dr. Wopke van der Werf, Wageningen University, Wageningen, The Netherlands. July 14-19, 2001  
Dr. Wopke van der Werf, Wageningen University, Wageningen, The Netherlands. Dec. 16-20, 2002  
Dr. Felix Bianchi, Wageningen University, Wageningen, The Netherlands. August 22-29, 2005  
Dr. Wopke van der Werf, Wageningen University, Wageningen, The Netherlands. Mar. 4-11, 2006  
Dr. Wopke van der Werf, Wageningen University, Wageningen, The Netherlands. Sept. 23-30, 2007

## **POST-DOCTORALS**

### *Current*

Robert Ahern, Invasive Species Ecology, Policy and Management  
Nurali Saidov, IPM CRSP Project Team Leader, Tashkent, Uzbekistan

### *Former Post-docs and current employment*

Jianqing Ding, Research Scientist and Program Leader, Invasion Ecology and Biological Control Lab. Wuhan Botanical Garden, China  
Adam Davis, (joint with Karen Renner, Doug Buhler) Research Scientist, USDA ARS, Champaign-Urbana IL  
Mindy Hoffman, self-employed, Ohio.  
Fabian Menalled, Assistant Professor, Montana State University. Bozeman, MT.  
Carlos Garcia-Salazar, Small-Fruit District Agent, Michigan State University Extension. Ottawa Co. MI  
Larry Dyer, Educator, MSU Extension  
David Orr, Associate Professor, University of North Carolina, Raleigh, NC.  
Paul Marino, Professor and Head, Memorial University. St. John's, Newfoundland  
Karim Maredia, Associate Professor, Intl. Agric. Inst. Michigan State University. E. Lansing, MI.  
Richard Cowles, Associate Scientist, Connecticut Agricultural Experiment Station. New Haven, CT.  
Bruce Giebink, MSEA Education Coordinator, University of Minnesota. St Paul, MN.

## **STUDENT ADVISEMENT**

### *Current*

Ryan Colliton, MS Advisory Committee, Forestry  
Nikhil Sankara Jaikumar, MS Advisory Committee, Crop and Soil Science  
Thomas Alwin, MS Advisory Committee, Fisheries and Wildlife  
Jessica Megan Woltz, PhD Major Advisor, Entomology  
Chris Hamm, PhD Major Advisor, Entomology  
Nate Walton, MS Advisory Committee, Entomology  
Mary Gardiner, PhD Major Advisor, Entomology  
Jeff Evans, PhD Major Advisor, Entomology  
Anna Fiedler, PhD Major Advisor, Entomology

Current Students = 9

### *Past (Graduated)*

Eduardo Esiptia Malgon, IPM MS Advisory Committee, Entomology  
Julianna Tuell, PhD Advisory Committee, Entomology (2007)  
Wei Zhang, PhD Advisory Committee, Agricultural Engineering (2007)  
Toshi Yoshida, PhD Advisory Committee, Plant Biology (withdrew 2007)  
Paul Jenkins, MS Advisory Committee, Entomology (2006)  
Smruti Damani, PhD Advisory Committee, Fisheries and Wildlife (withdrew 2006)  
Barbara Barton, PhD Major Advisor, Entomology (withdrew 2007)  
Evandro deSilva, PhD Univ. of Michigan, Dept. of Natural Resources (2006)

Shaun Langley, MS Advisory Committee, Entomology (2006)  
 Jeff Evans, MS Major Advisor, Entomology (2006)  
 Anna Fiedler, MS Major Advisor, Entomology (2006)  
 Alejandro Costamagna, PhD Major Advisor, Entomology (2006)  
 Merritt Gilliland, PhD Dept of Zoology (2006)  
 Richard Smith, PhD Advisory Committee, Plant Biology  
 Tristram Gibbons, NSF REU Program, Kellogg Biological Station, LTER  
 Emily Carlson, IPM MS Advisory Committee, Entomology  
 Natalia Botera-Garces, PhD Advisory Committee, Entomology  
 Tyler Fox, MS Major Advisor, Entomology  
 Tammy Wells, MS Major Advisor, Entomology  
 Matthew O'Neal, PhD Major Advisor, Entomology  
 Alejandro Costamanga, MS Major Advisor, Entomology  
 Nathan Cottrell, MS Advisory Committee, Entomology  
 Brian McCornack, MS Advisory Committee, Entomology  
 Tim Dietz, MS Advisory Committee, Crop and Soil Science  
 Diana McKenzie, MS. Advisory Committee, Entomology  
 Diego Marcello Jans, IPM MS Advisory Committee, Entomology  
 Young-Ki Jo, MS Advisory Committee, Entomology  
 Chris Sebolt, MS. Major Advisor, Entomology  
 Sherry White, MS Advisory Committee, Crop and Soil Science  
 Jana Lee, MS. Major Advisor, Entomology  
 Angela Miller, MS Advisory Committee, Entomology  
 Palasuberniam Kaliannan, MS Advisory Committee, Entomology  
 Leonard Francke, MS Advisory Committee, Entomology  
 Melanie Kaeb, MS Advisory Committee, Entomology  
 Sheila Ebert, MS Advisory Committee, Entomology  
 Dora Carmona, MS Major Advisor, Entomology  
 Anila Ickhlas, MS, Advisory Committee, Entomology  
 Ho How Leng, MS, Advisory Committee, Entomology  
 Michael Smolow, NSF HSHSP Program  
 Lyle Buss, MS, Advisory Committee, Entomology  
 Manuel Colunga, PhD Advisory Committee, Entomology  
 Brent Tharp, MS Advisory Committee, Crop and Soil Science.  
 Amy Roda, MS. Major Advisor, Entomology  
 Eric Spandel, Ph D. Advisory Committee, Crop and Soil Science.  
 Roberta Chase, Aug 1995, NSF REU Program, Kellogg Biological Station, LTER  
 Jeffery Stachler, MS, May 1995, Advisory Committee, Crop and Soil Science.  
 Lawrence Dyer, Ph D May 1995, Major Advisor, Entomology (C. S. Mott Fellow, Sustainable Agriculture)  
 Idris Bin Idris, PhD May 1995, Advisory Committee, Entomology  
 Allen Pyle, MS, May 1995, Advisory Committee, Entomology  
 Eric Spandel, May 1993, MS Advisory Committee, Crop and Soil Science.  
 Jim Jasinski, MS, May 1992, Advisory Committee, Entomology  
 Margi Coggins, MS, June 1991, Major Professor, Entomology.  
 John Wise, MS, June 1990, Advisory Committee, Entomology.  
 Barry Brothers, MS June 1991, Advisory Committee, Crop and Soil Science.  
 Jay Schmidt, MS June 1991, Advisory Committee, Crop and Soil Science.  
 Jianjun (Carl) Chen, MS, Dec. 1989. Entomology/Nematology.  
 Phillipos Ionnadis, Special Project, Sugar Beet Insect Extension.  
 D. Vincent Chiuswa, MS, Dec. 1988, Advisory Committee, Agricultural Entomology.

**Total Students and Post-Doctorals Advised =80**

**SYMPOSIA/MEETINGS ORGANIZED (past five years)**

18. The Purple Loosestrife Project Cooperator Training Workshop. Co-Organizer M. Klepinger. MSU ANR Week, March 10, 2004. E. Lansing, MI.
19. Native Plants to Enhance Biological Control. Cooperators Field Day, July 7, 2004 MSU and Wildtype Native Plant Nursery, Mason, MI.
20. MSU Invasive Species Symposium I. May 13, 2005. MSU, E. Lansing, MI.
21. Native Plants to Enhance Biological Control. Field Day, August 10, 2005 MSU and Wildtype Native Plant Nursery, Mason, MI.
22. Science and Practice of Restoration II. Symposium entitled: Moving Towards Landscape Scale Restoration. MSU ANR Week, March 6, 2006. E. Lansing, MI.
23. MSU Invasive Species Symposium II. May 12, 2006. MSU Epply Center, E. Lansing, MI.
24. Native Plants to Enhance Biological Control. Field Day, August 1, 2006 MSU and Wildtype Native Plant Nursery, Mason, MI.
25. Ecological Restoration and Forest Management: MSU MacCready Reserve Field Day. July 15, 2007.
26. MSU Invasive Species Symposium III. April 4, 2008. MSU Union, E. Lansing, MI.
27. Ecological Restoration and Forest Management: MSU MacCready Reserve Field Day. June 25, 2008.

#### **MSU COURSES TAUGHT**

ENT 401 Special Project. "Stored-Grain Insect Management." D.V. Chiuswa. 1988  
 ENT 425 "Agricultural Entomology." Field Crops Entomology Laboratory Sections. Annually 1989-92  
 ENT 812 "Landscape Ecology with Special Reference to Insects." With S. H. Gage, Sp. 1990  
 ENT 812 "Environmental Aspects of Enhanced Biological Control." Sp. 1994  
 ENT 890 "Biological Control." Sp. 1997  
 ENT 848 "Biological Control." Sp. 1999, 2001, 2003, 2005, 2007

#### **MSU GUEST LECTURES PRESENTED (past five years)**

BOT/ZOL/ENT 485 Tropical Ecology. Title "Biological Control in the Tropics." 1998-07.  
 CSS 488 Integrated Cropping Systems. "Soybean Aphid: A New Key Pest Changes Everything." 2004-05  
 CSS 893 Methods in Soil and Plant Ecology for Sustainable Systems. "Assessing Arthropod Mediated Ecosystem Services." 2008  
 ENT 844 Insect Ecology, Evolution and Conservation.  
     "Population Growth and Regulation." 2002, 2004, 2006, 2008  
     "Invasive Species Ecology." 2002, 2004, 2006, 2008  
     "Conservation Ecology for Natural Enemies." 2002, 2004, 2006, 2008  
 ENT 890/ PLB802/ FW 893. Invasive Species Ecology Policy and Management. "Biological Control of Purple Loosestrife." 2006  
 FOR 412 Wildland Fire. "Fire Dependent Communities of the Jackson Interlobate Region". 2007  
 FW412/417 Wetland Ecology and Management. "Biological Control of Purple Loosestrife." 2005, 2007

FW 840 Landscape Ecology. "Designing Landscapes to Enhance Ecosystem Services." 2007

HRT 251 Organic Farming Principles and Practices. Title: Enhancing Beneficial Insects with Native Plants. 2007

ZOO 355 Ecology. Oak Savanna and Fen Restoration at the MSU MacCreedy Reserve. 2007

ZOL/PLB 355 & 355L KBS Summer Ecology. "Oak Savanna and Prairie Fen Restoration at the MSU MacCreedy Reserve. 2007

**Total = 58**

#### **MSUE IN-SERVICE TRAINING AND SHORT COURSES (past five years)**

46. "Biological Control of Invasive Species." D. Landis. Integrated Pest Management and Sustainable Agriculture Short Course, Michigan State University. June 14, 2004
47. "Invasive Species Ecology and Biological Control." D. Landis. Integrated Pest Management and Sustainable Agriculture Short Course, Michigan State University. June 27, 2005
48. "Landscape Ecology and Sustainable Agriculture: Designing Agricultural Landscapes for Ecological Pest Management." and "Biological Control." D. Landis. Sustainable Agriculture Short Course, Michigan State University. June 18 and 27, 2007

#### **EXTENSION PRESENTATIONS (past five years)**

114. Michigan Native Plants to Enhance Biological Control. Field Crop AOE Team Meeting. A.K. Fiedler and D.A. Landis. Dec. 21, 2004. E. Lansing, MI.
115. Biological Control of Invasive Plants. D.A. Landis. Michigan Landscape and Nursery Association and Great Lakes Trade Exposition. Jan 11, 2005, Grand Rapids, MI.
116. Garlic Mustard Webcast. The Stewardship Network and MSU Global Enterprises. May 11, 2005. E. Lansing, MI.
117. Federal Energy Commission, Office of Energy Projects, Division of Hydropower Administration and Compliance, Noxious Plants Workshop. June 7, 2005. Woldumar Nature Center, Lansing, MI.
118. Purple Loosestrife Webcast. The Stewardship Network and MSU Global Enterprises. June 13, 2005. E. Lansing, MI.
119. Prairie Planting Webcast. The Stewardship Network and MSU Global Enterprises. July 13, 2005. E. Lansing, MI.
120. Managing Invasive Plants. MSU Fisheries and Wildlife Club. Nov. 5, 2005. E. Lansing, MI.
121. Soybean Aphid Biocontrol. Via video recording at Ecological Insect Management Workshop. January 17, 2006. W.K. Kellogg Biological Station, Hickory Corners, MI. and January 19, 2006. Gratiot County Extension, Ithaca, MI.
122. Using Plants to Enhance Natural Enemies. Via video recording at Ecological Insect Management Workshop. January 17, 2006. W.K. Kellogg Biological Station, Hickory Corners, MI. and January 19, 2006. Gratiot County Extension, Ithaca, MI.

123. Using Native Plants to Conserve Natural Enemies in the Agricultural Landscape. **Fiedler, A.K.** and D.A. Landis. Michigan Small Farms Conference. Grayling, MI. Jan. 2006.
124. Using Native Plants to Conserve Natural Enemies. **Fiedler, A.K.** and D.A. Landis. Wild Ones Red Cedar Chapter. East Lansing, MI. Jan. 2006.
125. Using Native Plants to Conserve Natural Enemies. **Fiedler, A.K.** and D.A. Landis. Macomb County Extension. Clinton Township, MI. Jan. 2006.
126. Landscape influences soybean aphid biological control. **M.M. Gardiner** and D.A. Landis. Ag Action Days, Kalamazoo, MI. January 27, 2006.
127. Using Michigan Native Plants to Enhance Biological Control of Insects. **D.A. Landis** and A.K. Fiedler. Michigan Wildflower Association, Annual Meeting. Lansing, MI. March. 5, 2006.
128. Enhancing Beneficial Insects with Native Plants. **Fiedler, A.K.** and D.A. Landis. 2007. Wildflower Association of Michigan Annual Meeting. East Lansing, MI. (*invited talk*)
129. Ecological Restoration at the MSU MacCready Reserve. **D.A. Landis.** MSU Fisheries and Wildlife Club. March 13, 2008.
130. A list of Nonindigenous Biota in Michigan. **Ahern, R.G.** and D.A. Landis. Integrating Invasive Plant Species Data in the Midwest: Solutions for Data Collection and Management. Madison, WI Jan. 21, 2008.
131. The Michigan State University Invasive Species Initiative. **Ahern, R.G.,** and D.A. Landis. Tribal Geospatial Gathering, Michigan Tribal GIS Group. Mt Pleasant, MI.
132. The Michigan State University Invasive Species Initiative. **Ahern, R.G.,** and D.A. Landis. The Office of the Great Lakes, Michigan's Call to Action on Aquatic Invasive Species. Mar. 5, 2008.
133. The MSU Invasive Species Initiative. **D.A. Landis,** D. Schemske, R. Ahern and A. Ziegler. MSU Invasive Species Symposium III. April 4, 2008. MSU Union, E. Lansing, MI.
134. Introduction to the Great Lakes Bioenergy Research Center and NSF Long-Term Ecological Research Sites. **D.A. Landis.** CANR Traveling Seminar 2008. Kellogg Biological Station Aug. 21. 2008.
135. Valuing Biocontrol Services. **D.A. Landis.** KBS-LTER Farmer Field Day. Kellogg Biological Station Oct. 1. 2008.

## CONSULTANTSHIPS

World Wildlife Fund, Great Lakes Agricultural Pollution Prevention Project. Development of a Stakeholder-Based Plan to Reduce the use of Agricultural Chemicals in the Great Lakes Basin. Jan 29-30, 1994. Ann Arbor, MI.

World Wildlife Fund, Integrating Regional Policy with Implementation Strategies for Pesticide Reduction in the Great Lakes Basin. March 29-31, 1994. The Johnson Foundation, Wingspread Conference Center, Racine, WI.

Great Lakes Soil and Water Quality, roundtable discussion to formulate a response to the National Academy of Science, National Research Council, Board on Agriculture, Committee on Long-Range Soil and Water Conservation Report entitled: "Soil and Water Quality: An Agenda for Agriculture." November 14-15, 1994. Chicago, IL.

Joint United Nations Environmental Program (UNEP) – Scientific Committee on Problems of the Environment (SCOPE) meeting to prepare UNEP’s 2003 Global Environmental Outlook (GEO) statement. Paris, France. Oct. 18-19, 2003.

## PROFESSIONAL SERVICE

NCR-125 Arthropod Biological Control Regional Committee. 1989-07.  
NCR 46 Corn Rootworm Technical Committee, Secretary/Treasurer (1991)  
NCR 46 Corn Rootworm Technical Committee, Chairperson Elect (1992)  
NCR 125 Biological Control of Pest Arthropods, Secretary/Treasurer (1992)  
NCR 46 Corn Rootworm Technical Committee, Chair (1993)  
NCR 125 Biological Control of Pest Arthropods, Chair (1994)  
*Midwest Biological Control News*, Field Crops Editor, Monthly Newsletter with Distribution of ca. 2,000 in 11 North Central States. 1994-00  
USDA Extension Service, IPM Program. Strategic Planning. Jan 17-18, 1994. San Antonio. TX.  
Secretary/Treasurer (1995-96) International Organization for Biological Control, Nearctic Region.  
Member, C. V. Riley Award Committee, NCB-ESA (1995-96)  
NC-205 Ecology and Management of European Corn Borer and other Stalk-Boring Lepidoptera. 1996-02.  
Chair, C.V. Riley Award Committee, NCB-ESA (1996-97)  
Moderator, Student Competition, ESA National Meeting (1998)  
USDA SARE Ecological Farming System Design Team. Nov. 7-8, 1998. Las Vegas, NV.  
USDA Niles Partnership Steering Committee. 1999-02.  
Judge, Student Competition, ESA National Meeting (1999-2003)  
ESA’s EF Henry and Sylvia Richardson Research Grant Committee (2003)  
NCR 125 Arthropod Biological Control, Chair-elect (2004)  
Reviewed Ottawa National Forest Invasive Species Control Project (2004)  
Board Member at Large, International Organization for Biological Control, Nearctic Region (2004-6)  
NCERA-125 Arthropod Biological Control Regional Committee 2004-5 (Secretary 2004, Chair 2005)  
Michigan Stewardship Network, Steering Committee, Education Sub-committee (2005-7)  
Review USDA TAG petition 2005, 2007  
External Examiner, PhD Thesis, Lincoln University, New Zealand (2006)  
Michigan Stewardship Network, Board President (2007-)  
External Examiner, PhD Thesis, University of Sydney, Australia (2008)

## Peer Reviewer:

Grants            Agricultural Utilization Research Institute, 1996, 1998 (2)  
Bowling Green State Univ., Faculty Grants Program, 1996  
International Foundation for Science, 2000  
Kentucky State University, Evans-Allen fund proposal 2008  
Legislative Council on Minnesota Natural Resources, Biological Control, 1994  
Leopold Center for Sustainable Agriculture, 1994, 1995  
MSU AURIG, 1996 (2)  
National Biological Control Institute, 1995  
National Science Foundation, 2003, 2005  
NRICGP Integrative Biology: Arthropods, Nematodes 2004 (2), 2005 (2)  
NRICGP Entomology/Nematology, 1994, 1995, 1996, 1997, 2003 (2)  
NRICGP Biological Control, 1994, 1995, 1996,  
NRICGP Biologically-Based Pest Management 1997, 1998 (2), 1999 (3), 2000 Panel member (71 proposals considered), 2001 Panel member (67 proposals considered), 2002 (1)  
NRICGP Ecosystems, 1996  
Southern Regional IPM Panel Member 1998 (41 proposals considered)  
USDA Competitive Grants, 1991  
USDA Small Business Innovation Research, 1998

New Zealand Centres of Excellence Fund (2006)

Journals

Agroforestry Systems, 1997  
Agriculture and Human Values, 1996  
American Entomologist, 1998 (2)  
American Midland Naturalist, 2000  
Annals of the Entomological Society of America, 2003  
Australian Journal of Experimental Agriculture, 2005  
Basic and Applied Ecology, 2005, 2007, 2008  
BioControl Associate Editor 2002 (8), 2003 (11), 2004 (13), 2005 (9)  
Biological Control, 1994, 1995 (3), 1996 (2), 1998 (2), 1999, 2001 (2), 2003, 2004 (2), 2005, 2006 (2)  
Biocontrol Science and Technology, 2004  
BioScience, 2007  
Bulletin of Insectology, 2008  
Cities and the Environment, 2008  
Ecography, 2002, 2004, 2006  
Ecology, 1999, 2008  
Ecology Letters, 2004  
Ecological Applications, 2004, 2005, 2008  
Ecological Entomology, 1998, 2000, 2003 (2), 2005  
Environmental Entomology, 1989, 1990, 1992, 1993 (2), 1994, 1995, 1997 (2), 1999, 2001, 2002, 2003, 2004, 2007, 2008  
Entomologia Experimentalis et Applicata, 1998, 1999, 2003, 2004 (2), 2007  
Field Crops Research, 1990  
Forest Ecology and Management, 2003  
Frontiers in Ecology and the Environment, 2004, 2007  
HortScience, 1988  
International Journal of Ecology and Environmental Sciences, 2003  
Journal of Agricultural Entomology, 1990  
Journal of Agroforestry Systems, 1996  
Journal of Applied Ecology, 2005  
Journal of Applied Entomology, 2008  
Journal of Chemical Ecology, 1992  
Journal of Economic Entomology, 1991, 1995 (3), 1997, 1998, 2000, 2001, 2002, 2003  
Journal of Entomological Science, 1997  
Journal of Insect Behavior, 1998, 2003, 2004  
Oecologia, 2004  
Pest Management Science, 2007  
The Great Lakes Entomologist, 1993, 1994, 1995, 1997, 1998 (2), 1999, 2001 (2), 2003, 2005  
The Canadian Entomologist, 1988, 2007  
Weed Science, 2008  
Wetlands, 2003

Books

Chapter peer review for Ecological Engineering for Pest Management: advances in habitat manipulation for arthropods (2003)  
Chapter peer review for Ecology of Predator-Prey Interactions (2003)  
Chapter peer review for Plant Provided Food and Plant-Carnivore Mutualism. Cambridge University Press. (2003)  
Chapter peer review for Biological Control: Measures of Success, Kluwer (2000)  
USDA ARS Manuscript Peer Review, 2000  
USDA SARE Sustainable Agriculture Network publications, 1998, 2003  
Insect Ecology an Ecosystem Approach 2<sup>nd</sup> ed. 2005

Tenure and Promotion Peer Reviews; year and (number if more than one)

2000, 2001, 2002 (3), 2003 (2), 2004 (4), 2006 (2)

## UNIVERSITY SERVICE

MSU CES, Crop Advisory Team (CAT) Member, Field Crops. 1988-96.  
MECP, Michigan Energy Conservation Program, IPM Expert Team Member. 1988-91.  
AIMS, Agricultural Integrated Management Software. Core Member. 1989-91.  
Agricultural Industry Committee, Field Crops. 1988-92.  
MSU AES Type of Farming Team, Cash-Grain, Cash-Crop Committee. 1990-91.  
Forage Commodity Committee, (Crop and Soil Science Standing Committee). 1990-95.  
MSU ANR Week Conference on Sustainable Agriculture, Advisory Committee. 1990.  
MSU AES Forage Research Task Force Member. 1990-92.  
MSU AES/CES IPM Task Force Team Member. 1990-94  
MSU CES, Sustainable Agriculture, Field Crops Education Development Team Member. 1991-92.  
MSUE, Field Crops Area of Expertise Team 1995-present  
C.S. Mott Graduate Fellowship in Sustainable Agriculture, Selection Committee. 1991-95.  
1<sup>st</sup> Annual MSAN Research Symposium on Sustainable Agriculture, Poster Judge (2000)  
CANR Strategic Initiative, Working Group Co-Chair, 2001-02  
CANR/CVM Michigan Governor-elect Granholm's Briefing Document "Michigan's Opportunities and Challenges," Invasive Species Team 2003  
CANR/CNS Review Team, Kellogg Biological Station, 2003  
Production and Food Systems Ecology, Program Development Committee 2003-04  
MSU Museum Invasive Species Exhibit Development Committee 2004  
MSU Invasive Species Initiative Coordinator 2004-  
Peer Review of USDA Special Grant for MAES 2005  
KBS/Crop Soil Science, Soils and Cropping Systems Ecologist Search Committee 2004-05  
KBS Research and Graduate Program Retreat (invited external faculty participant) 2007  
CANR Promotion and Tenure Committee (2007-)

## DEPARTMENTAL SERVICE

Coach MSU Dept. Entomology, Linnaean Games Team 1989-1994.  
-North Central Branch Champions, 1989.  
-Second Place, National Competition, 1990.  
MSU Dept. Entomology, Awards Committee. 1990.  
Chair, MSU Dept. Entomology, IPM Strategic Planning Committee, 1991-92.  
Editor, MSU Dept. Entomology, IPM Report, 1992.  
MSU Dept. Entomology, IPM Exhibit, Ag. Expo, 1992.  
Department Chairs Advisory Committee, Dec. 1992-94.  
Faculty Advisor, Dept. Entomology Graduate Student Debate Team. 1994.  
Hutson Grant Reviews 1995-2004.  
Acting Chair, MSU Dept. of Entomology, 4/17 - 6/2/95.  
Acting Chair, MSU Dept. of Entomology, 4/17 - 6/2/95.  
Chair, Pest-Management Curriculum Review Committee 1997.  
Academic Dishonesty Hearings, Panel Member (1) and Chair (1) 1998.  
Graduate Student Committee 1998-01.  
Faculty Organizer/Coach, Dept. Entomology Graduate Student Debate Team. 1999.  
Visioning Committee. Co-Chair 2001.  
Vision Transition Committee. Chair 2002.  
Chair, Graduate Student Committee 2002-  
Merger Response Writing Team. 2003.  
Seminar Series Organizer. Fall 2003, Spring 2004.  
Strategic Planning Committee 2004  
Facility Planning Committee 2005-06

Other:

North Aurelius Science Day, Presentation on insects to 250 2nd-5th grade students. 3/1999  
Farm Bureau Rural Education Day, MSU Pavilion, E. Lansing, MI. 4/1999.  
Judge, 4-H State Award in Entomology. 6/99  
Mason Girl Scouts Nature Daze. Presentation on insects to 200 K-6th grade students. 6/2000  
North Aurelius Science Day, Presentation on insects to 250 1st-5th grade students. 3/2003  
Member, Camp Friedenswald Natural Resources Task Force (NRTF) 2003-  
-Drafted Invasive Species Management Plan for NRTF 2004  
-Obtained MDNR Landowner Incentive Program grant for invasive species management 2005-7  
Coach, Mason Middle School Science Olympiad. 2005-6