

Alicia Marie Bray

CURRICULUM VITAE

December 2010

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PROFESSIONAL SCIENTIFIC WORK EXPERIENCE AND EDUCATION

- 11/2010-present Postdoctoral research associate, School of Agriculture and Consumer Sciences, Otis L. Floyd Research Center, Tennessee State University, McMinnville, TN
- Research responsibilities include: Develop/improve trapping and management practices for wood-boring insects that threaten the nursery industry in North America.
- 08/2009-10/2010 Visiting Professor, Department of Biological Sciences, East Tennessee State University, Johnson City, TN
- Responsibilities included: Coordinate a team and conduct research on several research projects with flesh flies, *Sarcophaga crassipalpis*; develop course curriculum from research projects; teach General Entomology and Invertebrate Zoology in the fall semester and Animal Physiology in spring semester; mentoring undergraduate research students and graduate students.
- PhD
August 2009 Entomology and Program in Ecology, Evolutionary Biology and Behavior. Michigan State University. Semester system. Dissertation title: Invasion genetics of Emerald Ash Borer (*Agilus planipennis* Fairmaire) in North America. Research supervisor: James J. Smith and Anthony Cognato.
- MS
December 2003 Entomology. Michigan State University. East Lansing, MI. Semester system. Thesis title: Ovipositional behavior of *Anopheles gambiae* as influenced by variable substrates and chemicals. Research supervisor: Edward D. Walker and James R. Miller.
- BA,
May 1996. Biology/biochemistry, Minor in German. Eastern Michigan University. Ypsilanti, MI 48197. Semester system

SKILLS

- Experimental design in laboratory, field and greenhouse conditions
 - Field experiments/scouting conducted on three continents
 - Identify and evaluate insect and microbial biological control agents
 - Maintain and operate wide range of laboratory and field equipment
 - Developing and incorporating genetic analysis with management strategies for pest species
- Experimental design, data collection and statistical analysis – for wood-boring pests of trees, medical/veterinary important insect vectors (including mosquitoes and ticks) as well as invasive species
- Locating and evaluating scientific literature
- Insect rearing – including, but not limited to, several mosquito species, flesh flies, emerald ash borer and associated parasitoids, *Rhagoletis* fruit flies, *Drosophila*, walking sticks, cockroaches.
- Polymerase chain reaction; DNA sequencing; DNA fingerprinting with amplified fragment length polymorphisms; Microsatellite loci development
- Molecular genetic markers used to assess various hypotheses including, but not limited to:
 - Geographic origin of invasive species
 - Estimation of number of introduction events
 - Estimation of genetic differentiation
 - Gene flow/ Isolation-by-distance
- Incorporate GPS and GIS information into research design
- Evaluate and implement integrated pest management for insect pests

- Oral skills
 - Presenting research at over 20 conferences; Invited presenter at 3 national conferences/symposiums and over 10 extension and outreach functions
 - Conducted undergraduate classes for over 9 years
 - Trained, directed, and managed graduate and undergraduate research student
 - Lead teaching teams that included professors, graduate and undergraduate instructors for introductory biology courses
 - Conducted programs for K-12 students
- Written skills
 - Abstracts for over 20 conferences
 - Drafting and editing grants for submission by research advisor
 - Drafting and submitting fellowship grants to fund doctoral research and summer salary support, majority successfully funded
 - Drafting and editing quarterly reports and final reports for several grants pertaining to Emerald Ash Borer research
 - Designed and wrote course curriculum for undergraduate and K-12 classes

ACTIVE PARTICIPANT IN WRITING AWARDED GRANTS (Complete list of written grants available upon request)

2007 MSU (GREEN), Establishment and use of microsatellite loci to characterize Emerald Ash Borer (*Agrilus planipennis* Fairmaire) populations in North America and Asia. 2007-2008, \$41,565. Primary investigator: James J. Smith

FELLOWSHIPS, HONORS AND AWARDS

June 2009 Doctoral Completion Fellowship, College of Agriculture and Natural Resources, Michigan State University, E. Lansing, MI. \$6,000

June 2008 Summer Support Fellowship, College of Natural Science, Michigan State University, E. Lansing, MI. \$6,100

2007 Department of Entomology, Michigan State University, E. Lansing, MI. Gordon Guyer Extension Award

June 2007 Summer Fellowship Award from Program in Ecology, Evolutionary Biology and Behavior, Michigan State University. E. Lansing, MI. \$1,700

June 2007 Summer Retention Fellowship. College of Agriculture & Natural Resources, Michigan State University. E. Lansing, MI. \$3,500

June 2006 Summer Fellowship Award from Program in Ecology, Evolutionary Biology and Behavior, Michigan State University. E. Lansing, MI. \$1,600

June 2006 MSU International Predissertation Travel Award from The International Studies and Programs at Michigan State University, E. Lansing Mi. \$5,000

2005 Fellowship, Department of Entomology, Michigan State University, E. Lansing, MI \$4500

June 2004 Michigan Entomological Society – received first place in student competition

June 2003 Michigan Entomological Society – received first place in student competition

2001 Department of Entomology, Michigan State University, E. Lansing, MI. Eugenia McDaniel Outstanding Teacher Award

PUBLICATION

Bray, A.M., Bauer L.S., Poland T.M., Haack R.A., Cognato A.I., Smith J.J.: Genetic analysis of emerald ash borer (*Agrilus planipennis* Fairmaire) populations in Asia and North America –Biological Invasions *in press*

PUBLICATIONS IN PROGRESS

Bray, A.M., Cori, J., Haack R.A., Bauer L.S., Polland T., Smith J.J.: Development of microsatellite loci for Emerald Ash Borer (*Agrilus planipennis* Fairmaire) to determine the geographic origin

Bray, A.M., Vulule J., Miller J.R., Walker E.D.: Influence of varied substrates and soil types on oviposition responses of *Anopheles gambiae*

Frtiz, M., **Bray A.M.**, Miller, J.R., Walker E.D.: Quantification of oviposition behavior of *Anopheles gambiae*

TEACHING EXPERIENCE

<i>BIOL 3260 – Animal Physiology</i>	01/2010-05/2010
Department of Biological Sciences, East Tennessee State University, Johnson City, TN	
Instructor of record	
<i>BIOL 3480 – General Entomology</i>	08/2009-12/2009
Department of Biological Sciences, East Tennessee State University, Johnson City, TN	
Instructor of record	
<i>BIOL 3460 – Invertebrate Zoology</i>	08/2009-12/2009
Department of Biological Sciences, East Tennessee State University, Johnson City, TN	
Instructor of record	
<i>ISB 208L: Introductory Biological Laboratory</i>	8/2008-5/2009
Department of Entomology, Michigan State University. E. Lansing, MI.	
Teaching assistant.	
<i>LBS 144: Organismal Biology, or LBS 145: Molecular Biology</i>	1/2004-5/2007
Lyman Briggs School, Michigan State University. E. Lansing, MI	
Teaching assistant	
<i>ISB 208L: Introductory Biological Laboratory</i>	1/2003-12/2003
Department of Entomology, Michigan State University. E. Lansing, MI.	
Teaching assistant.	
<i>ISB 208L: Introductory Biological Laboratory</i>	8/2000-5/2002
Department of Entomology, Michigan State University. E. Lansing, MI.	
Teaching assistant.	
<i>ENT 205: Pests, Society & Environment</i>	1/2000-5/2000
Department of Entomology, Michigan State University. E. Lansing, MI.	
Teaching assistant.	

CONFERENCES/SEMINARS PRESENTED (partial list)

- March 2010 (Louisville, KY) North-Central branch of the Entomological Society of America – **Invited symposium presentation**
- January 2010 (Annapolis, Maryland) 21st USDA Interagency Research Forum on Invasive Species – **Invited presentation**
- November 2008 (Reno, Nevada) Entomological Society of America – presented paper
- April 2008 (East Lansing, Michigan) Invasive Species Symposium – presented poster
- December 2007 (San Diego, California) Entomological Society of America – **Invited symposium presentation**
- October 2007 (Pittsburgh, Pennsylvania) Annual Emerald Ash Borer Meeting – presented paper
- December 2006 (Indianapolis, Indiana) Entomological Society of America – poster presented
- October 2006 (Cincinnati, Ohio) Annual Emerald Ash Borer Meeting – presented paper
- May 2006 (Asheville, North Carolina) North American Forest Insect Work Conference – poster presented
- May 2006 (Asheville, North Carolina) Third Workshop on Genetics of Bark Beetles and Associated Microorganisms – presented paper
- May 2006 (East Lansing, Michigan) Invasive Species Symposium: Challenges and Opportunities) – presented paper
- December 2005 (Fort Lauderdale, Florida) Entomological Society of America – presented paper
- September 2005 (Pittsburgh, Pennsylvania) Annual Emerald Ash Borer Meeting – presented paper
- February 2005 (Mount Pleasant, Michigan) Michigan Mosquito Control Association – presented paper
- November 2004 (Salt Lake City, Utah) Entomological Society of America – presented poster
- October 2004 (Romulus, Michigan) Annual Emerald Ash Borer Meeting – presented paper
- June 2004 (Higgins Lake, Michigan) Michigan Entomological Society – presented paper, received first place in student competition
- February 2004 (Grand Rapids, Michigan) Michigan Mosquito Control Association – presented paper
- November 2003 (Cincinnati, Ohio) Entomological Society of America – presented poster
- June 2003 (Novi, Michigan) Michigan Entomological Society – presented paper, received first place in student competition
- March 2003 (Minneapolis, Minnesota) American Mosquito Control Association – presented poster
- November 2002 (Fort Lauderdale, Florida) Entomological Society of America – presented paper
- March 2002 (East Lansing, Michigan) North-Central branch of the Entomological Society of America – presented paper
- December 2001 (San Diego, California) Entomological Society of America – presented paper

UNIVERSITY LEADERSHIP EXPERIENCE

Council of Graduate Students	2002-2007
Representative for the Department of Entomology	
University Committee for Faculty Tenure	2005-2007
University Graduate Judiciary	2005-2009
University Graduate Professional Judiciary	2005-2009
Olin Advisory committee	2005-2007

SERVICE AND OUTREACH EXPERIENCE

Michigan State University Bug House

Position: Guide

- Presenting educational information about insects to children of all ages
- Invited presentations to State of Michigan Libraries throughout the state
- Designed hands-on presentations for Ingham County Girl's Math and Science Conference
- Designed and lead insect based lesson plans for home-school groups
- Private tours for Boy Scout, Cub Scout merit badges and birthday parties

Michigan State University Bug Camp

Position: Counselor

- Designed and guided children 6-11 years old hands-on camp activities for ½ day camps related in insects and ecology

Insect World Science Camp

Position: Counselor

- Guided 9-16 year old children in 4 day adventure of field work pertaining to insects and ecology
- Designed and lead activities for up to 80 campers

Master Gardener Program – Michigan State University Extension

Position: Instructor

- Designed and presented classes on household pests and plant health care to people across the state of Michigan in training for Master Gardener certification

Michigan State University Get Bugged Program

Position: Instructor

- Designed and instructed weekly insect based science classes to first grade elementary students

Ingham County Girls' Math and Science Conference

Position: Presenter

- Designed and presented a variety of hands-on activities to middle school students, including eating insects, dissections and the importance of insect decomposers to human life

PROFESSIONAL MEMBERSHIPS

- Entomological Society of America
- Michigan Entomological Society
- Michigan Mosquito Control Association
- American Mosquito Control Association
- Society for the Study of Evolution
- Society of Systematic Biologists
- The American Society of Tropical Medicine and Hygiene
- The Society for Vector Ecology

REFERENCE LIST

**Available upon request