

Kristopher J. Abell

Education

Ph.D., Entomology, September 2010

University of Massachusetts, Amherst, MA

Dissertation: Population dynamics and biological control of elongate hemlock scale,
Fiorinia externa Ferris

Advisor: Dr. Roy Van Driesche

GPA: 3.77

Master of Science, Ecology and Environmental Science, May 2007

University of Maine, Orono, ME

Thesis: The effects of forest management on parasitic wasps

Advisor: Dr. Stephen Woods

GPA: 3.75

Bachelor of Science, Biology, May 2000

University of North Carolina at Charlotte

GPA: 3.28

Research Experience and Training

Post-doctoral Research, Department of Entomology, University of Maryland, College Park, 2016 – present. Supervisor: Dr. Paula Shrewsbury

- Evaluated the impact and interaction of systemic insecticide and introduced egg and larval parasitoids on emerald ash borer populations in Maryland
- Developed an integrated pest management program for emerald ash borer combining chemical treatment and parasitoid releases
- Released, monitored, and evaluated the impact of a newly introduced emerald ash borer parasitoid, *Spathius galinae*, in Maryland
- Monitored the spread of introduced parasitoids of emerald ash borer at release sites in Maryland
- Collected and preserved seeds of various ash trees species in Maryland to preserve ash species diversity

Post-doctoral Research, Department of Entomology at Michigan State University, 2010 – 2015. Supervisors: Dr. Jian Duan and Dr. Roy Van Driesche

- Assessed population dynamics and created detailed life tables of emerald ash borer in Michigan
- Released, monitored, and evaluated the impact of introduced parasitoids on emerald ash borer in Michigan
- Investigated the biology, behavior, and interactions of imported parasitoids of emerald ash borer
- Developed and refined methods for recovering and monitoring egg and larval parasitoids of emerald ash borer
- Developed a technique to create cohorts of emerald ash borer in the field

- Created and maintained lab colonies of emerald ash borer and parasitoids
- Trained and supervised field and lab assistants

Ph.D. Research, Department of Plant, Soil and Insect Science, University of Massachusetts, Amherst, 2004 – 2010. Advisor: Dr. Roy Van Driesche

- Designed and implemented experimental protocol to assess elongate hemlock scale population dynamics along a latitudinal gradient from Connecticut to North Carolina
- Conducted molecular and phylogenetic analysis of the parasitoid complex of armored scales on hemlock from the US and Japan to identify host associations and possible cryptic diversity
- Organized and conducted an extensive survey for hemlock scales and their parasitoids in Japan
- Supervised the importation and rearing in quarantine of parasitoids of hemlock scale species from Japan
- Collaborated with taxonomist George Japoshvili to identify and describe new parasitoid species of armored scales on hemlock in Japan
- Conducted a series of standardized rearings of elongate hemlock scale primary parasitoid along a latitudinal gradient to determine flight phenology
- Trained and supervised lab technicians and field collectors in three states (Massachusetts, Pennsylvania, and North Carolina)

M.S. Research, Department of Biological Sciences, Ecology and Environmental Science Program, University of Maine, Orono, 2001 – 2004. Advisor: Dr. Stephen Woods

- Participated in the collaborative study of an NRI funded research project, “The effects of silviculture practices on the diversity of insect communities”
- Studied the effects of clear-cut timber harvesting, forest age, tree replanting and herbicide use on flowering plant and insect communities
- Extensive fieldwork involving insect trap deployment, sample collection, and vegetation surveys at remote field sites
- Identified, preserved, and cataloged insect specimens
- Trained and supervised lab and field assistants

Parasitic Hymenoptera Training Session XI, Department of Entomology, University of Maryland, College Park, Summer 2002

- Intensive training on parasitic hymenoptera biology, sampling methods, taxonomy, and identification

Undergraduate Research, Department of Biological Sciences, University of North Carolina at Charlotte, Fall 1999

- Assisted Dr. Lawrence Barden on prairie restoration project with emphasis on the endangered *Helianthus schweinitzii* in the piedmont of North Carolina
- Conducted survey and identification of vascular plants

Field Technician, Mecklenburg County Health Department, Charlotte, North Carolina, Summer 1999

- Surveyed local larval mosquito population and breeding locations

- Educated public about mosquito life cycle and preferred breeding habitat

Teaching Experience

Laboratory Instructor, Introductory Biology, Department of Biological Sciences, University of Maine, Fall 2001 and Fall 2003

- Taught three laboratory sections on the basic structure and function of plants and animals at the cellular level
- Wrote and graded laboratory practical examinations, graded research papers and laboratory assignments, and proctored lecture exams
- Held regular office hours to help students with lecture and lab material

Teaching Assistant, Tree Pests and Disease, Department of Biological Sciences, University of Maine, Spring 2003

- Prepared specimens and materials for two laboratory sections
- Graded lecture exams and quizzes, set up and graded laboratory exams, quizzes, and assignments

Laboratory Instructor, Biology of Organisms, Department of Biological Sciences, University of Maine, Spring 2003

- Taught two laboratory sections on the anatomy, morphology, and physiology of plants and animals
- Wrote and graded laboratory practical examinations, graded laboratory reports and assignments, and proctored lecture exams
- Held regular office hours to help students with lecture and lab material

Environmental Educator, Aquatic Entomology, Audubon Society, Vermont, 2000

- Presented daily hands-on programs in the field on aquatic invertebrate communities, insect life cycles, and aquatic natural history
- Led field trips to sample and observe insects, plants, birds, and amphibians
- Led 14-day 'research experiences' for middle and high school students to participate in research activities with local scientists

Publications

Abell, K.J., Bauer, L.S., Duan, J.J., Miller, D., and Van Driesche, R.G. 2016. Monitoring the establishment and flight phenology of parasitoids of emerald ash borer (Coleoptera: Buprestidae) in Michigan, USA using sentinel eggs and larvae. *Florida Entomologist* 99(4): 667-672.

Abell, K.J., Gwiazdowski, R., Normark, B.B., and Van Driesche, R.G. 2016. The scale and parasitoid community on hemlocks in Japan. *Biological Control* 100: 7-17.

Duan, J.J., Bauer, L.S., **Abell, K.J.**, Ulyshen, M.D., and Van Driesche, R.G. 2015. Population dynamics of an invasive forest insect and associated natural enemies in the

aftermath of invasion: implications for biological control. *Journal of Applied Ecology* 52(5): 1246-1254.

Abell, K.J., Poland, T., Cosse, A., and Bauer, L.S. 2015. Trapping techniques for emerald ash borer and its introduced parasitoids. *In*: Van Driesche, R.G. and Reardon, R.C. (eds). *Biology and control of emerald ash borer*. USDA Forest Service, FHTET 2014-09, pp. 113-128.

Abell, K.J., Bauer, L.S., Duan, J.J., and Van Driesche, R.G. 2014. Long-term monitoring of the introduced emerald ash borer (Coleoptera: Buprestidae) egg parasitoid, *Oobius agrili* (Hymenoptera: Encyrtidae), in Michigan, USA and evaluation of a newly developed monitoring technique. *Biological Control* 79: 36-42.

Duan, J.J., **Abell, K.J.**, Bauer, L.S., Gould, J., and Van Driesche, R.G. 2014. Natural enemies implicated in the regulation of an invasive pest: a life table analysis of the population dynamics of the emerald ash borer. *Agricultural and Forest Entomology* 16: 406-416.

Duan, J.J., Bauer, L.S., **Abell, K.J.**, Lelito, J.P., and Van Driesche, R.G. 2013. Establishment and abundance of *Tetrastichus planipennisi* (Hymenoptera: Eulophidae) in Michigan: potential for success in classical biocontrol of the invasive emerald ash borer (Coleoptera: Buprestidae). *Journal of Economic Entomology* 106: 1145–1154.

Japoshvili, G., **Abell, K.J.**, Normark, B.B., Van Driesche, G. 2013. Aphelinid and Encyrtid (Hymenoptera: Chalcidoidea) parasitoids of armored scales (Hemiptera: Diaspididae) attacking hemlocks (*Tsuga* spp.) in Japan and the United States with description of eight new species. *Annals of the Entomological Society of America* 106(5): 541-554.

Abell, K.J., Duan, J.J., Bauer, L., Lelito, J.P., and Van Driesche, R.G. 2012. The effect of bark thickness on host partitioning between *Tetrastichus planipennisi* (Hymen: Eulophidae) and *Atanycolus* spp. (Hymen: Braconidae), two parasitoids of emerald ash borer (Coleop: Buprestidae). *Biological Control* 63: 320–325.

Duan, J.J., Bauer, L.S., **Abell, K.J.**, and Van Driesche, R.G. 2012. Population responses of hymenopteran parasitoids to the emerald ash borer (Coleoptera: Buprestidae) in recently invaded areas in north central United States. *Biocontrol* 57(2): 199-209.

Duan, J.J., Bauer, L.S., Hansen, J.A., **Abell, K.J.**, and Van Driesche, R.G. 2012. An improved method for monitoring parasitism and establishment of *Oobius agrili* (Hymenoptera: Encyrtidae), an egg parasitoid introduced for biological control of the emerald ash borer (Coleoptera: Buprestidae) in North America. *Biological Control* 60(3): 256-261.

Yang, S., Duan, J.J., Watt, T., **Abell, K.J.**, and Van Driesche, R.G. 2012. Responses of an idiobiont ectoparasitoids, *Spathius galinae* (Hymenoptera: Braconidae), to host larvae parasitized by the koinobiont endoparasitoid *Tetrastichus planipennisi* (Hymenoptera: Eulophidae): Implications for biological control of emerald ash borer (Coleoptera: Buprestidae). *Environmental Entomology* 41(4): 925-932.

Abell, K.J., and Van Driesche, R.G. 2012. Impact of latitude on synchrony of a scale (*Fiorinia externa*) (Hemiptera: Diaspididae) and its parasitoid (*Encarsia citrina*) (Hymenoptera: Aphelinidae) in the Eastern United States. *Biological Control* 63: 339-347.

Abell, K.J. and Van Driesche, R.G. 2011. The use of cohorts to evaluate the impact of *Encarsia citrina* (Hymenoptera: Aphelinidae) on *Fiorinia externa* (Hemiptera: Diaspididae) in the eastern United States. *Florida Entomologist* 94(4): 902-908.

Preisser, E. L., Elkinton, J. S., and **Abell, K.** 2008. Evolution of increased cold tolerance during range expansion of the elongate hemlock scale *Fiorinia externa* Ferris (Hemiptera: Diaspididae). *Ecological Entomology* 33: 709-715.

Presentations

Abell, K. “The challenges of biological control, two forest pest examples: elongate hemlock scale and emerald ash borer” Invited presentation at the University of Maryland College Park Department of Entomology seminar series. October 7, 2016.

Abell, K., Bauer, L., Duan, J., and Van Driesche R. “Impact of the introduced egg parasitoid, *Oobius agrili* (Hymenoptera: Encyrtidae), on emerald ash borer (Coleoptera: Buprestidae) in Michigan” Poster presentation at the 62nd annual meeting of the Entomological Society of America, Portland, OR. November 15-19, 2014.

Abell, K., Bauer, L., Duan, J., and Van Driesche R. “Assessing phenology and establishment of *Tetrastichus planipennisi* an introduced parasitoid of emerald ash borer.” Poster presentation at the 24th USDA Interagency Research Forum on Invasive Species, Annapolis, MD. January, 2013

Abell, K., Bauer, L., Duan, J., and Van Driesche R. “Does increasing bark thickness prevent parasitism of emerald ash borer by *Tetrastichus planipennisi* or *Atanycolus* spp.?” Poster presentation at the 23rd USDA Interagency Research Forum on Invasive Species, Annapolis, MD. January, 2012

Abell, K., Bauer, L., Duan, J., and Van Driesche, R. “Assessment of *Oobius agrili* establishment and phenology using egg sentinel logs.” Poster presentation at the National Emerald Ash Borer Conference, Wooster, OH. October 12-13, 2011.

Abell, K. and Van Driesche, R. “Scales and associated parasitoids on hemlock trees in Japan: Implications for classical biological control of elongate hemlock scale.” Oral presentation at the 58th annual meeting of the Entomological Society of America, San Diego, CA. December 12-15, 2010.

Abell, K. and Van Driesche, R. “Population Dynamics of *Fiorinia externa* (Hemiptera: Diaspididae) and synchrony with the parasitoid *Encarsia citrina* (Hymenoptera:

Aphelinidae) in the United States.” Oral presentation at the 56th annual meeting of the Entomological Society of America, Reno, Nevada, November 16-19, 2008.

Abell, K. and Van Driesche, R. “Incidence of elongate hemlock scale (*Fiorinia externa*) and its parasitoid (*Encarsia citrina*) in the eastern US.” Oral presentation at the Fourth Symposium on Hemlock Woolly Adelgid in the Eastern United States, Hartford, CT, February 12-14, 2008.

Van Driesche, R., Reardon, R. C., Montgomery, M., Cowles, R., **Abell, K.**, Nunn, C., Lyon, S., Kamata, N., Wu-Sanan. “Classical biological control of the elongate hemlock scale, *Fiorinia externa*: 2004 Activities.” Third Symposium on Hemlock Woolly Adelgid in the Eastern United States, Asheville, NC, February 1-3, 2005. Published in conference proceedings.

Lyon, S., **Abell, K.**, Van Driesche, R., Reardon, R. C. “A comparison of the density and parasitism of *Fiorinia externa* (Homoptera: Diaspididae) in Japan and the northeastern US.” The 53rd Annual Meeting of the Entomological Society of America, Fort Lauderdale, FL, November 6-9, 2005.

Abell, K., Woods, S. “Short and long-term effects of clearcut timber harvesting and glyphosate application on parasitic Hymenoptera in Maine.” Oral presentation at Acadian Entomological Society Annual Meeting, Bar Harbor, ME, June 22-24, 2003. Abstract published in conference proceedings.

Abell, K., Woods, S. “Characterizing the effects of timber harvesting and glyphosate herbicide application on parasitoid wasp communities in Maine.” Oral Presentation at the University of Maine Graduate Research Exposition, Orono, ME, April 19-27, 2003. Abstract published in conference proceedings.

Abell, K., Woods, S. “Characterizing the effects of forest gaps on parasitic Hymenoptera.” Oral Presentation at Eastern Branch Entomological Society of America Annual Meeting, Harrisburg, PA March 16-18, 2003.

Abell, K., Woods, S. “Characterizing the effects of timber harvesting and glyphosate herbicide application on parasitoid wasp communities in Maine.” Oral Presentation at Northeast Biological Graduate Student Conference, Charlottetown, Prince Edward Island, February 28-March 2, 2003. Abstract published in conference proceedings.

Abell, K., Woods, S. “Characterizing the effects of forest gaps on parasitic Hymenoptera.” Oral Presentation at Eastern CANUSA Forest Science Conference, University of Maine, Orono, ME, October 19-20, 2002. Abstract published in conference proceedings.

Abell, K., Woods, S. “Effects of Timber Harvesting and Herbicide Application on Parasitoid Wasp Communities in Maine.” Oral Presentation at Acadian Entomological Society Annual Meeting, Machias, ME, July 21-23, 2002. Abstract published in conference proceedings.

Academic Honors and Awards

Pierson Fellowship, University of Massachusetts, Amherst, 2007 and 2008.

Mark W. Houseweart Award for Outstanding Research in Forest Entomology, University of Maine, Orono, 2002

Professional Service

Fernald Club Treasurer, University of Massachusetts, Amherst, 2006 – 2008

Eastern Branch Entomological Society of America, University of Massachusetts Student Representative, 2006-2007.

Eastern Branch Entomological Society of America, Service Volunteer, 2002 and 2003

Association of Graduate Students, Grant Review Committee, University of Maine, Orono, 2003

References

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