

C.V.

Rodger Alan Gwiazdowski, PhD

/(g)wiz-dau-skē/

Advanced BioConsulting, LLC.
139 Spring Street
Shrewsbury, Massachusetts, 01545

Telephone: (413) 320-3755 (cell)
rodger.gwiazdowski@gmail.com
Skype/Google: rodger.gwiazdowski

CITIZENSHIP

United States of America

EDUCATION

- Ph.D 2011 **Organismic & Evolutionary Biology and Entomology - Joint Degree**
University of Massachusetts, Amherst (UMass)
Advisor: Dr. Benjamin B. Normark
- B.S. 2000 **Biology - Minor in Marine Science**, Stockton University, Galloway, New Jersey
Advisor: Dr. Rudolf Arndt

POSTDOCTORAL EXPERIENCE

- 2014 Postdoctoral Fellow, Hanner Lab, University of Guelph, Ontario. Canada.
2012 – 2014 Postdoctoral Fellow, Hebert Lab, Biodiversity Institute of Ontario. Canada.
2011 – 2012 Postdoctoral Researcher, Elkinton Lab, University of Massachusetts, Amherst. USA.

PROFESSIONAL EXPERIENCE

- 2018 – Present Adjunct Asst. Professor, Department of Environmental Conservation (ECo), UMass.
2017 – Present Principal Investigator - Puritan Tiger Beetle Recovery Project, Sunderland, MA.
2015 – Present Owner - Advanced BioConsulting, LLC. Shrewsbury, MA.
2014 – 2015 Bioinformatic Technologist - TRU-ID Ltd. Guelph, Ontario. Canada.
2009 – 2010 Pierson Fellow in Forest Entomology, UMass.
2008 – 2010 Curatorial Assistant and Staff Manager - Entomology Collection, UMass.
2003 – 2011 Research Assistant - Normark Lab, UMass.
2004 Organizer - OEB Graduate Program Discussion Group, UMass.
2000 – 2003 Animal Husbandry Technician - Liberty Science Center, Jersey City, N.J.
1999 Teaching Assistant - Vertebrate Zoology, Stockton University, N.J.
1998 Zoological Pathology Assistant - Wildlife Conservation Society, Bronx, NY.
1996 – 1998 Assistant Trainer & Narrator - Marine Mammal Training Department,
New York Aquarium, New York, N.Y.

PEER-REVIEWED PUBLICATIONS

- Duran, D.P., Herrmann, D.P., Roman, S.J., **Gwiazdowski, R.A.**, Drummond, J., Hood, G.R., Egan, S.P.. 2018. Cryptic diversity in the North American Dromochorus tiger beetles (Coleoptera: Carabidae: Cicindelinae): a congruence-based method for species discovery. *Zoological Journal of the Linnean Society*, zly035, 1-36. <https://doi.org/10.1093/zoolinnea/zly035>
- Abell, K. J., **Gwiazdowski, R. A.**, Kamata, N., Normark B. B., Van Driesche, R.G., 2016. The scale and parasitoid community on native hemlocks in Japan. *Biological Control* 100: 7-17. doi: 10.1016/j.biocontrol.2016.05.006

Peer-Reviewed Publications, continued:

- Strohm, J.H.T., **Gwiazdowski, R. A.**, Hanner, R. 2015. Fast fish face fewer mitochondrial mutations: patterns of *dN/dS* across fish mitogenomes. *Gene* 572 (1): 27-34. doi:10.1016/j.gene.2015.06.074
- Phillips, J. D., **Gwiazdowski, R. A.**, Ashlock, D., Hanner, R. 2015. An exploration of sufficient sampling effort to describe intraspecific DNA barcode haplotype diversity: examples from the ray-finned fishes (Chordata: Actinopterygii). *DNA Barcodes*, 3 (1): 66-73. doi: 10.1515/dna-2015-0008
- Gwiazdowski, R. A.**, Footitt, R. G., Maw, H. E. L., Hebert, P.D.N. 2015. The Hemiptera (Insecta) of Canada: Constructing a Reference Library of DNA Barcodes. *PLOS One*. doi: 10.1371/journal.pone.0125635
- Strohm, J.H.T., **Gwiazdowski, R. A.**, Hanner, R. 2015. Mitogenome metadata: current trends and proposed standards. *Mitochondrial DNA*, Published online: 19 Feb 2015. doi: 10.3109/19401736.2015.1015003
- Andersen, J. C., **Gwiazdowski, R. A.**, Gadnetz, K., Gruwell, M.E. 2015. Armored scale insect endosymbiont diversity at the species level: genealogical patterns of *Uzinura diasipipdicola* in the *Chionaspis pinifoliae* and *Chionaspis heterophyllae* species complex (Hemiptera: Coccoidea: Diaspididae). *Bulletin of Entomological Review*, 105 (1):110-20. doi: 10.1017/S0007485314000820
- Andersen, J. C., **Gwiazdowski, R. A.**, Gruwell, M. E. 2014. Molecular evolution of sexual and asexual lineages of the armored scale insect *Aspidiotus nerii* (Hemiptera: Diaspididae) and its primary bacterial endosymbiont *Uzinura diasipipdicola*. *Annals of the Entomological Society of America*, 107 (5): 954-960. doi: 10.1603/AN14058
- Gwiazdowski, R. A.**, and Normark B, B. 2014. An unidentified parasitoid community (Chalcidoidea) is associated with pine-feeding *Chionaspis* scale insects. *Annals of the Entomological Society of America* 107 (2): 356-363. doi: 10.1603/AN13041
- Gwiazdowski, R. A.**, Elkinton, J. S., deWaard, J. R., Sermac, M. 2013. Phylogeographic diversity of the winter moths (Lepidoptera: Geometridae: *Operophtera*) *O. brumata*, and *O. bruceata* in Europe and North America. *Annals of the Entomological Society of America* 106 (2): 143-151. doi: 10.1603/AN12033
- Vea, I. M., **Gwiazdowski, R. A.**, Normark B. B. 2012. Corroborating molecular species discovery: Four new pine-feeding species of *Chionaspis* (Hemiptera, Diaspididae). *ZooKeys* 270: 37-58. doi: 10.3897/zookeys.270.2910
- Gwiazdowski, R. A.**, Veal, I. M., Andersen, J. C., B. B. Normark. 2011. Discovery of Cryptic Species among North American Pine-feeding *Chionaspis* Scale Insects (Hemiptera: Diaspididae). *Biological Journal of the Linnean Society* 47: 47-62. doi: 10.1111/j.1095-8312.2011.01716.x
- Gwiazdowski, R. A.**, Gillespie S., Weddle, R., Elkinton, J. 2011. Laboratory Rearing of Common and Endangered Species of North American Tiger Beetles (Coleoptera: Carabidae: Cicindelinae). *Annals of the Entomological Society of America* 104 (3): 534-542. doi: 10.1603/AN10114
- Andersen, J. C., Wu, J., Gruwell M. E., **Gwiazdowski, R. A.**, Santana, S.E., Feliciano, N. Morse, M.G.E., Normark B. B.. 2010. A phylogenetic analysis of armored scale insects (Hemiptera: Diaspididae), based upon nuclear, mitochondrial, and endosymbiont gene sequences. *Molecular Phylogenetics and Evolution* 57 (3): 992-1003. doi: 10.1016/j.ympev.2010.05.002

Peer-Reviewed Publications, concluded:

- Elkinton, J.S., Boettner, G.H., Sremac, M., **Gwiazdowski R. A.**, Hunkins, R.R., Callahan, J., Scheufele, S.B., Donahue, C.P., Porter, A.H., Khrimian, A., Whited, B.M., Campbell, N.K. 2010. Survey for Winter Moth, *Operophtera brumata* L. (Lepidoptera: Geometridae) in Northeastern North America with Pheromone-baited Traps and Hybridization with the Native Bruce spanworm, *Operophtera bruceata* (Hulst). *Annals of the Entomological Society of America* 103 (2): 135-145. doi: 10.1603/AN09118
- Gwiazdowski, R. A.**, Van Driesche, R.G., Desnoyers, A., Lyon, S., Wu, S., Kamata, N., Normark, B.B. 2006. Possible Geographic Origin of Beech Scale, *Cryptococcus fagisuga* (Hemiptera: Eriococcidae), an Invasive Pest in North America. *Biological Control* 39 (1): 9-18. doi: 10.1016/j.biocontrol.2006.04.009

Other Publications

- Gwiazdowski, R. A.**, McCollum, A. B., Knisley, C. B. 2016. Handling guidelines for common and rare tiger beetles (Coleoptera: Carabidae, Cicindelinae) (DRAFT VERSION of May 17 2016), in use by the Endangered Species Permit Office, U.S. Fish & Wildlife Service, Department of the Interior.
- Elkinton, J.S., Boettner, G.H., Liebhold, A, and **Gwiazdowski, R. A.** 2015. Biology, Spread and Biological Control of Winter Moth in North America. United States Forest Service booklet describing Winter Moth in North America. http://www.fs.fed.us/foresthealth/technology/pdfs/FHTET-2014-07_Biology_Control_Winter-Moth.pdf
- Gwiazdowski, R. A.**, and Davis, C. 2011. Captive Propagation and Reintroduction Plan for the Puritan Tiger Beetle in the Connecticut River Watershed. 2011. Technical report for the U.S. Fish & Wildlife Service.
- Gwiazdowski, R. A.**, Cushing, L., Normark, B. B. 2009. Additional genetic data support native range hypothesis for the invasive beech scale, *Cryptococcus fagisuga* Lindinger. *Biological Control News and Information*: Vol. 30 No. 4
- Gwiazdowski, R. A.** Fail Harder: Ridiculous Illustrations of Epic Fails, 2011. ISBN 1449403077 - photograph of “Donner Camp Picnic Ground Historical Site” sign, as page 150.

Entomology Collection Database

Entomology collection catalogue, UMass Entomology Museum Collection

<http://informatics.bio.umass.edu/museum/insect/>

Transformed legacy data into a searchable online database (MySQL) through recruitment and supervision of 5 UMass undergraduate students, over 4 consecutive semesters (2008-2009). The catalogue comprises >16,000 species and >107,500 specimens.

PRESENTATIONS

- 2018 **Invited Talk**, 2018 **Invited Talk**, “Backyard Extinctions - The Plight of the Puritan Tiger Beetle”. Gwiazdowski, R. A. OEB Science Cafe, Nacul Center, Amherst MA, March 08.
- 2017 **Invited Talk**, “The Northeastern Beach Tiger Beetle (*Cicindela d. dorsalis*): Field Identification, Biology & Conservation Status”. Gwiazdowski, R. A. Sandy Hook Unit - National Park Service, Sandy Hook, NJ, August 07.
- 2016 **Invited Talk**, “Puritan Tiger Beetle Recovery Work throughout the Connecticut Watershed-2016”. Gwiazdowski, R. A., and McCollum, A. Massachusetts State Natural Heritage & Endangered Species Program, Westborough, MA, November 02.

Presentations, continued:

- 2015 **Poster Presentation**, “Evolving the concept, and use, of DNA barcode libraries.” Gwiazdowski, R. A., and Hanner, R. 6th International Barcode of Life Conference. Guelph, Ontario, August 18-21. nrcresearchpress.com/doi/pdf/10.1139/gen-2015-0087
- 2015 **Poster Presentation**, “An exploration of sufficient sampling effort to describe intraspecific DNA barcode haplotype diversity: examples from the ray-finned fishes (Chordata: Actinopterygii).” Phillips, J. D., Gwiazdowski, R. A., Ashlock, D., and Hanner, R. 6th International Barcode of Life Conference. Guelph, Ontario, August 18-21. nrcresearchpress.com/doi/pdf/10.1139/gen-2015-0087
- 2013 **Poster Presentation**, “Genome size diversity in scale insects (Hemiptera: Coccoidea) and their relatives.” Kelly, D., Gwiazdowski, R. A., and Gregory, R.T. XIIIth International Symposium on Scale Insect Studies (ISSIS). Sofia, Bulgaria, September 2.
- 2013 **Invited Talk**, “Continent-wide species discovery and description using a multi-locus approach for cryptic taxa.” Department of Biodiversity, Earth & Environmental Science, Drexel University, PA, May 30.
- 2012 **Invited Talk**, “A new method for visualizing phylogenetic trees helps identify cryptic species in a lineage of pine-feeding scale insects (Hemiptera: Diaspididae).” Museum of Comparative Zoology, Harvard University, MA, April 16.
- 2012 **Invited Talk**, “Discovery of cryptic species among North American pine-feeding *Chionaspis* scale insects (Hemiptera: Diaspididae).” Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Canada. March 27.
- 2012 **Regional Meeting**, “Discovery of cryptic species among North American pine-feeding *Chionaspis* scale insects (Hemiptera: Diaspididae)”, ESA, Hartford, CT, March 18.
- 2012 **Invited Talk**, “Discovery of cryptic species among North American pine-feeding *Chionaspis* scale insects (Hemiptera: Diaspididae)”, Biodiversity Institute of Ontario seminar series, Department of Integrative Biology, Univ. of Guelph, Canada. Feb 23.
- 2012 **Poster Presentation**, “Discovery of cryptic species among Pine-feeding *Chionaspis* scale insects Hemiptera: Diaspididae)”, Gwiazdowski, R. A., I. Veá, J. C. Andersen, and B. B. Normark, 23rd USDA Interagency Research Forum on Invasive Species, Annapolis, MD, January 10-13.
- 2012 **Poster Presentation**, “Phylogeographic diversity of Winter Moth and Buce Spanworm (Lepidoptera: Geometridae: *Operophtera*)”, 23rd USDA Interagency Research Forum on Invasive Species, Annapolis, MD, January 10-13.
- 2009 **National Meeting**, “Cryptic Species Diversity and Evolution of Pine Feeding *Chionaspis* scale insects (Hemiptera, Diaspididae) from across North America”, R.A. Gwiazdowski, and B.B. Normark, Evolution, University of Idaho, June 15.
- 2009 **Invited Talk**, USFW Bi-annual Endangered Species Recovery meeting, “Mass Rearing of Tiger Beetles in the Laboratory”, Sandy Hook, NJ. February 18.
- 2009 **Invited Talk**, UNAM, México “Phylogeography, evolution and cryptic diversity of pine-feeding *Chionaspis* (Hemiptera: Diaspididae) across North America” part of the Ecology and Botany seminar series, México City, México. January 13.
- 2009 **Poster Presentation**, “Phylogeography, evolution and cryptic diversity of pine-feeding *Chionaspis* (Hemiptera: Diaspididae) across North America”, R.A. Gwiazdowski, and B.B. Normark. Internat’l Soc. Of Biogeography, Merida, México. January 8-12.
- 2008 **International Meeting**, “Fine-scale pine scale intraspecific phylogeography across North America (Hemiptera: Diaspididae)”, International Congress of Entomology, Durban, South Africa. July 7.

Presentations, concluded:

- 2007 **Invited Talk**, Universidad de Guadalajara, “The Strange and Fascinating Scale Insects”, Botany seminar series, Guadalajara, México. August 29.
- 2005 **National Meeting**, “Molecular phylogenetics of armored scale insects (Hemiptera: Diaspididae)”, R.A. Gwiazdowski, G.E. Morse, J. C. Andersen & B.B. Normark. ESA, Fort Lauderdale, FL. December 15-18.
- 2005 **National Meeting** “Phylogenetic placement and suggested native range of beech scale (Hemiptera: Eriococcidae)”, R.A. Gwiazdowski, A. Desnoyers, R.G. Van Driesche & B.B. Normark. Evolution, University of Alaska, Fairbanks. June 10-14.
- 2004 **National Meeting**, “Molecular Phylogenetics of Beech Scale, *Cryptococcus fagisuga*,” R.A. Gwiazdowski, B.B. Normark & A. Desnoyers. ESA, SLC, Utah, Nov 14-17.
- 2004 **Poster Presentation**: “Mass Rearing of Endangered Tiger Beetles,” R.A. Gwiazdowski & R. Weddle at “Expanding the Arc The Emerging Science and Practice of Invertebrate Conservation”, American Museum of Natural History, NY, N.Y. March 25-26.
- 2003 **Invited Talk**: “Captive Rearing Tiger Beetles for Re-introduction: Current efforts, and future plans at Liberty Science Center.” R.A. Gwiazdowski at “Symposium on Invertebrate Conservation in New England”, Silvio O. Conte National Wildlife Refuge Headquarters Turner Falls, M.A., March 28-29.

AWARDS, GRANTS & CONTRACTS

- 2019 - 2020 Contract: USFWS - Cobblestone Tiger Beetle Rearing & Taxonomy, \$12,000
- 2019 - 2020 Contract: USFWS - Cobblestone Tiger Beetle mtDNA survey, \$7,000
- 2017 - 2018 Conservation Recovery Initiative Grant, U.S. Fish and Wildlife Service (USFWS). \$391,837
- 2017 - 2018 Contract: USFWS - Puritan Tiger Beetle Recovery, \$130,000
- 2017 - 2018 Contract: USFWS - Northeastern Beach Tiger Beetle Surveys, \$16,600
- 2017 Contract: USFWS - Puritan Tiger Beetle Recovery, \$10,000
- 2016 Contract: USFWS - Puritan Tiger Beetle Recovery, \$21,000
- 2012 National Science Foundation Extreme Science and Engineering Discovery Environment (XSEDE). Startup allocation # TG-DEB120006. 6,000 computer hours.
- 2008 University of Massachusetts, Natural History Collections. \$3,500
- 2008 United States Fish and Wildlife Service, special appropriations. \$4,000
- 2007 University of Massachusetts, Natural History Collections. \$4,000
- 2005 National Fish and Wildlife Foundation Matching Grant #2005-0283-000, with Dr. Joseph Elkinton, UMass. \$44,163.00

PROFESSIONAL SOCIETIES and SERVICE***Professional Societies:***

American Zoo and Aquarium Association
 International Biogeography Society
 Entomological Society of America
 Society for the Study of Evolution
 Society of Systematic Biologists

Ad-hoc Reviewer:

Biological Journal of the Linnean Society
 PLoS ONE
 Northeastern Naturalist
 Bulletin of Entomological Research
 Insects
 Environmental Entomology

TEACHING EXPERIENCE

- 2003 & 2011 Teaching assistant, Introductory Biology Lab, UMass, Amherst
 2010 Teaching assistant, Plant Ecology, UMass, Amherst
 2006 – 2008 Teaching assistant, NSF-Sponsored Molecular Systematics Lab, UMass
 2005 Teaching assistant, Large lecture, Introductory Biology, UMass

MENTORING OF GRADUATE & UNDERGRADUATE RESEARCH

- 2018 - Current Caleb Robitaille, Prey diversity and diet breadth of the Puritan tiger beetle.
 Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
 2018 - Current Robin Saudade, Establishing a life table for the Puritan tiger beetle.
 Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
 2017 - Current Ainsley Brosnan-Smith, GIS mapping new habitat for the endangered
 Puritan tiger beetle. Co-advised with Dr. Lena Fletcher, UMass, Amherst
 2017 - Current Mary Apossos, Creating dynamic feeder-insect colonies for rearing tiger beetles.
 Co-advised with Dr. Lena Fletcher, UMass, Amherst
 2018 Alexandra Zink, Sediment as a predictor of habitat quality for the Puritan tiger beetle.
 Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
 2018 Ellen Dufraine, Oviposition behavior, and larval ecology of the Puritan tiger beetle.
 Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
 2017 - 2018 Muhammad Munir, K-12 interpretive terrarium-exhibit for tiger beetles.
 Co-advised with Dr. Lena Fletcher, UMass, Amherst
 2014 – 2017 Monica Davis, PhD. Taxonomic identification, phylogeographic variation, and ecological impact
 of an emerging oak-gall wasp pest (Hymenoptera: Eurytomidae).
 Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
 2014 – 2015 Jarrett Phillips, MSc., An R workflow for DNA barcode accumulation curves.
 Co-advised by Dr. Robert Hanner, and Dr. Dan Ashlock, University of Guelph.
 2013 – 2016 Darren Kelly, MSc., Survey of Genome Size within the Coccoidea.
 Co-advised by Dr. Ryan Gregory, University of Guelph
 2010 Cassandra Urquhart, Senior, UMass, Amherst. Evaluating tube enclosures for field placement
 of larval tiger beetles.
 2007 Pearline Ngauv, Freshman, UMass, Amherst. Molecular Systematics of the Chionaspidini
 (Hemiptera: Coccoidea).
 2007 Lindsey Cushing, Freshman, UMass, Amherst. mtDNA haplotype diversity of the beech scale,
Cryptococcus fagisuga.
 2007 Molly Thompson, Senior, UMass, Amherst. Checklist of Diseases Affecting Carabid Beetles.
 2007 Michael Gula, Junior, UMass, Amherst. Checklist of Diseases Affecting Carabid Beetles.
 2007 Anna Kang, Senior, UMass, Amherst. Checklist of Diseases Affecting Carabid Beetles.

COMMITTEE ASSIGNMENTS

- 2018 Expert Advisor to the U.S. Fish and Wildlife Service Cobblestone Tiger Beetle (CTB)
 Species Status Assessment Core Team. This team evaluates biological criteria for
 conserving CTB under the Endangered Species Act.
 2018 Committee Chair, selection committee for Internships in Puritan Tiger Beetle Conservation
 at the Silvio O. Conte NWR, Sunderland, MA.; from a nationwide search sponsored by
 the American Conservation Experience.
 2013 – 2014 Moderator, BIO Forum - weekly seminar series at the Biodiversity Institute of Ontario.
 Speaker invitation, scheduling, hosting, and announcement.

Committee Assignments, continued:

- 2011 Committee Member, Research Fellow Search Committee. For a research fellow supporting the Normark lab: Department of Plant, Soil and Insect Sciences, University of Massachusetts, Amherst.

PROFESSIONAL OUTREACH AND VOLUNTEERISM

- 2014 – 2016 Data Scientist for the international charity: www.ghanamedicalhelp.com (GMH). GMH distributes medical supplies donated from across North America to underserved hospitals in Ghana. My work directed a volunteer team for organization-wide data management and analytical workflows that evaluated operations, clarified Ghanaian health issues, and tracked the development of GMH.
- 2014 Ontario BioBlitz: Humber Watershed, May 24. Performed Hemiptera species-level identifications.
- 2013 Ontario BioBlitz: Rouge Park, September 14 & 15. Performed Hemiptera species-level identifications at the world's largest BioBlitz.
- 2008 Insectarium Director. Converted 19th century display cabinets into a USDA permitted exhibit for exotic insects. This exhibit is on permanent display in Fernald Hall at the University of Massachusetts, and is currently used by the K-12 Entomology outreach program sponsored by the Fernald Club.
- 2006 – 2008 President - Fernald Club, Entomology Faculty and Graduate student organization, UMass, Amherst. The Fernald Club is one of the oldest Entomology Graduate student organizations in the United States.

PERMITS

- USFWS Endangered Species Act Subpermit 01355C-1 for take of the federally threatened Puritan tiger beetle (*Cicindela puritana*) resulting from recovery activities. 2015 – Present
- NPS (National Parks Service: United States Department of the Interior) Scientific Research and Collecting Permit for the project: "Surveys for the Northeastern Tiger Beetle (*Cicindela dorsalis dorsalis*) on the Sandy Hook peninsula, New Jersey during the 2017 and 2018 active seasons. Permit number: GA TE-20 17-SCI-0032; Study number: GATE-496. 2017– Present
- NJFWS (State of New Jersey, Division of Fish & Wildlife) Scientific Collecting Permit to collect/possess/release the Northeastern Beach Tiger Beetle (*Cicindela dorsalis*). 2017 - Present
- USDA/APHIS PDEP-11-00107 Permit to Import Plant or Plant Products For Experimental Purposes (*Pinus spp.* Tissue, Cones & Seeds) from México into the United States (expired).
- USDA/APHIS P526P-07-06063 Permit to Move Live Plant Pests and Noxious Weeds (*Chionaspis pinifoliae*, live) from Canada to the United States (expired).
- USDA/APHIS P526P-07-07263 Permit to Move Live Plant Pests and Noxious Weeds (Exotic Arthropods) for Display Purposes or Insect Zoo (expired).

FIELD EXPERIENCE

- 2009 Field Collection of insect & botanical specimens: México;
States of MEX, MIC, GUE, OAX, CHP, CAM, YUC.
- 2008 Trip Leader, UMass Systematic Entomology class, New Jersey Pine Barrens.
- 2007 Field collection of insect & botanical specimens: México, almost all states.
- 2006 Field collection of insect & botanical specimens: United States, 26 states.

PROFESSIONAL REFERENCES

Dr. Joseph Elkinton, Professor
University of Massachusetts, Amherst
Department of Environmental Conservation
Agricultural Engineering Building, Room 310
250 Natural Resources Road, Amherst, MA 01003
elkinton@ent.umass.edu
(413) 545-4816

Dr. C. Barry Knisley, Professor Emeritus
Department of Biology
Randolph-Macon College
304 Caroline St.
Ashland, VA 23005
bknisley@rmc.edu
(804) 314-0061

Dr. Steven D. Brewer, Senior Lecturer II
Director, Biology Computer Resource Center
University of Massachusetts, Amherst
611 N Pleasant Street
Morrill III South, Room 311A
Amherst, MA 01003
sbrewer@bio.umass.edu
(202) 633-4584

Dr. Robert Hanner, Associate Professor
University of Guelph
Department of Integrative Biology
Science Complex 1454
Guelph, Ontario, Canada N1G 2W1
rhanner@uoguelph.ca
(519) 824-4120, Extension 53479

Dr. Matthew E. Gruwell, Department Chair of
Biology
Penn State Erie, The Behrend College
Department of Integrative Biology
162 Nick Hall
4701 College Drive, Erie, PA 16563
meg26@psu.edu
(814) 898-6276

Dr. Paul Z. Goldstein, Research Entomologist
Systematic Entomology Laboratory, USDA
National Museum of Natural History, E-502
P.O. Box 37012, MRC 168
Washington, DC 20013-7012
paul.goldstein@ars.usda.gov
(202) 633-4584