

Rodger Alan Gwiazdowski, PhD

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EDUCATION

- Ph.D 2011 **Organismic and Evolutionary Biology & 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

PROFESSIONAL EXPERIENCE

- 2018 – Present Adjunct 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.
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.
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.
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.

AWARDS, GRANTS & CONTRACTS

- 2020 – 2023 Grant: U.S. Fish and Wildlife Service (USFWS), Recovery Challenge,
Translocation of the Northeastern Beach Tiger Beetle. \$145,500
- 2020 Contract: USFWS, Riparian micro-habitat remote telemetry. \$4,000
- 2019 – 2020 Contract: USFWS, Puritan Tiger Beetle Habitat Recovery. \$44,600
- 2019 – 2020 Grant: USFWS, Recovery Challenge, Northeastern Beach Tiger Beetle. \$80,000
- 2019 – 2020 Contract: USFWS - Cobblestone Tiger Beetle Rearing & Taxonomy, \$12,000
- 2019 – 2020 Contract: USFWS - Cobblestone Tiger Beetle mtDNA survey, \$7,000
- 2017 – 2018 Grant: USFWS, Conservation Recovery Initiative. \$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

MEDIA COVERAGE

Print

- 2020 The Montague Reporter: Insects Downstream Wait on Dam Relicensing; November 12.
<https://montaguereporter.org/wp-content/uploads/2020/11/November-12-2020.pdf>
- 2020 Stockton University: The Essential Elements, Fall Issue. For Love of Tiger Beetles.
<https://stockton.edu/sciences-math/ezine/fall2020/for-love-of-tiger-beetles.html>
- 2020 University of Massachusetts, Amherst, News & Media relations: Researchers to Fan Out on Seaward NJ Beach in July to Seek Tiger Beach Beetle Larvae Relocated from Cape Cod; June 30.
<https://www.umass.edu/newsoffice/article/researchers-fan-out-seaward-nj-beach-july>
- 2020 The Asbury Park Press: Meet the beetles! Sandy Hook aims to bring back vanishing tiger beetles; May 28.
<https://www.app.com/story/news/local/land-environment/2020/05/28/sandy-hook-tiger-beetles/5261149002>
- 2020 The Cape Cod Chronicle: Tiger Beetles From Thriving Monomoy Colony Transferred To New Jersey Beach; May 20.
<https://capecodchronicle.com/en/5521/chatham/5852/Tiger-Beetles-From-Thriving-Monomoy-Colony-Transferred-To-New-Jersey-Beach-Monomoy-National-Wildlife-Refuge-Conservation.htm>
- 2020 The Cape Cod Times: Monomoy beetles used to help preserve rare species; May 18.
<https://www.capecodtimes.com/news/20200518/monomoy-beetles-used-to-help-preserve-rare-species>
- 2020 Insider NJ: Rare beetles returned to North Jersey shores; May 13.
<https://www.insidernj.com/press-release/rare-beetles-returned-north-jersey-shores/>
- 2020 The Monmouth Journal: Northeastern Beach Tiger Beetle To Be Reintroduced At Sandy Hook; May 11.
<https://themonmouthjournal.com/northeastern-beach-tiger-beetle-to-be-reintroduced-at-sandy-hook-p9146-1.htm>
- 2019 The Daily Hampshire Gazette: The fight is on to save the last of the puritan tiger beetles; July 16.
<https://www.gazettenet.com/Puritan-Tiger-Beetles-26525449>
- 2018 The New York Times: Puritan Tiger Beetles, 'Vicious Predators,' May Soon Hunt Again; Dec. 04 (in print Dec. 04, page D1, as The Science Times cover story).
<https://www.nytimes.com/2018/12/04/science/puritan-tiger-beetles-vicious-predators-may-soon-hunt-again.html>
- 2012 The New York Times: Exhibits That Only Researchers Usually See; Oct. 26 (in print Oct. 28, page F2).
<http://www.nytimes.com/2012/10/28/arts/artsspecial/some-exhibits-at-natural-history-museum-are-only-seen-by-researchers.html>

Broadcast

- 2019 National Public Radio: NEXT - Episode 164: New England's Most Endangered Species; Young Climate Activists Take The Lead; Sept. 19.
<https://www.npr.org/podcasts/497694714/n-e-x-t>

- 2018 WGBY 57, Public Television for Western New England - Connecting Point: Saving the Puritan Tiger Beetle from Extinction; Nov. 14. <https://connectingpoint.wgby.org/puritan-tiger-beetle-extinction/>

PEER-REVIEWED PUBLICATIONS

- 2020 Knisley, C. B., **Gwiazdowski, R. A.**. Conservation Strategies for Protecting Tiger Beetles and their Habitats in the United States: Studies with Listed Species. *Annals of the Entomological Society of America*, Special Conference Proceedings. Invited paper, in press.
- 2020 **Gwiazdowski, R. A.**, Andersen, J.C., Knisley, C. B., Griffin, B. P., and Elkinton, J. S. First Account of Phylogeographic Variation, Larval Characters, and Laboratory Rearing of the Endangered Cobblestone Tiger Beetle *Cicindelidia marginipennis*, Dejean, 1831 with Observations of Their Natural History. *Insects* 11, 708. <https://doi.org/10.3390/insects11100708>
- 2020 Duran, D. P., Laroche, R. A., Gough, H. M., **Gwiazdowski, R. A.**, Knisley, C. B., Herrmann, D. P., Roman, S. J., and Egan, S. P.. Geographic life history differences predict genomic divergence better than mitochondrial barcodes or phenotype. *Genes* 11 (3): 265. <https://doi.org/10.3390/genes11030265>
- 2020 Blair, J., **Gwiazdowski, R. A.**, Borrelli, A., Hotchkiss, M., Park, C., Perrett, G. and Hanner, R. Toward a catalogue of biodiversity databases: An ontological case study. *Biodiversity Data Journal Online*: 27 March. <https://doi.org/10.3897/BDJ.8.e32765>
- 2019 Duran, D. P., Herrmann, D. P., Roman, S. J., **Gwiazdowski, R. A.**, Drummond, J., Hood, G. R., and Egan, S. P. 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* 186 (1) 250–285. <https://doi.org/10.1093/zoolinnean/zly035>
- 2016 Abell, K. J., **Gwiazdowski, R. A.**, Kamata, N., Normark B. B., Van Driesche, R. G., The scale and parasitoid community on native hemlocks in Japan. *Biological Control* 100: 7-17. doi: 10.1016/j.biocontrol.2016.05.006
- 2015 Strohm, J.H.T., **Gwiazdowski, R. A.**, Hanner, R. 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
- 2015 Phillips, J. D., **Gwiazdowski, R. A.**, Ashlock, D., Hanner, R. 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
- 2015 **Gwiazdowski, R. A.**, Foottit, R. G., Maw, H. E. L, Hebert, P.D.N. The Hemiptera (Insecta) of Canada: Constructing a Reference Library of DNA Barcodes. *PLOS One*. doi: 10.1371/journal.pone.0125635
- 2015 Strohm, J.H.T., **Gwiazdowski, R. A.**, Hanner, R. Mitogenome metadata: current trends and proposed standards. *Mitochondrial DNA, Online*: 19 Feb. doi: 10.3109/19401736.2015.1015003
- 2015 Andersen, J. C., **Gwiazdowski, R. A.**, Gadnetz, K., Gruwell, M.E. 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

- 2014 Andersen, J. C., **Gwiazdowski, R. A.**, Gruwell, M. E. 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
- 2014 **Gwiazdowski, R. A.**, and Normark B, B. 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
- 2013 **Gwiazdowski, R. A.**, Elkinton, J. S., deWaard, J. R., Sermac, M. 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
- 2012 Vea, I. M., **Gwiazdowski, R. A.**, Normark B. B. Corroborating molecular species discovery: Four new pine-feeding species of *Chionaspis* (Hemiptera, Diaspididae). *ZooKeys* 270: 37-58. doi: 10.3897/zookeys.270.2910
- 2011 **Gwiazdowski, R. A.**, Vea, I. M., Andersen, J. C., B. B. Normark. 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
- 2011 **Gwiazdowski, R. A.**, Gillespie S., Weddle, R., Elkinton, J. 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
- 2010 Andersen, J. C., Wu, J., Gruwell M. E., **Gwiazdowski, R. A.**, Santana, S.E., Feliciano, N. Morse, M.G.E., Normark B. B. 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
- 2010 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., Khimian, A., Whited, B.M., Campbell, N.K. 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
- 2006 **Gwiazdowski, R. A.**, Van Driesche, R.G., Desnoyers, A., Lyon, S., Wu, S., Kamata, N., Normark, B.B. 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

- 2016 **Gwiazdowski, R. A.**, McCollum, A. B., Knisley, C. B. 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.
- 2015 Elkinton, J.S., Boettner, G.H., Liebhold, A, and **Gwiazdowski, R. A.**. 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

- 2011 **Gwiazdowski, R. A.**, and Davis, C. 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.
- 2009 **Gwiazdowski, R. A.**, Cushing, L., Normark, B. B. Additional genetic data support native range hypothesis for the invasive beech scale, *Cryptococcus fagisuga* Lindinger. Biological Control News and Information: Vol. 30 No. 4
- 2009 **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.

CONFERENCE PRESENTATIONS

- 2019 “How to delist an endangered species: restoring the Puritan tiger beetle in the Connecticut River.” **Gwiazdowski, R. A.** Stockton University, School of Natural Sciences & Mathematics, Biology Program Seminar. Galloway, NJ, December 06.
- 2019 “Conservation Strategies For Protecting Tiger Beetles And Their Habitats: Studies With Listed Species.” **Gwiazdowski, R. A.**, and C. B. Knisley. Entomological Society of America, Ex Symposium: Defying the Decline: Applied and Research-Based Conservation Initiatives Making a Difference in Sustaining Insect Biodiversity. St. Louis, MO, November 17.
- 2019 “Cobblestone Tiger Beetle (*Cicindela marginipennis*): Biology, Captive Rearing and Preliminary Phylogeography.” **Gwiazdowski, R. A.** Hugh John Flemming Forestry Centre, Fredericton NB, Canada, September 18.
- 2019 “Repopulating the endangered Puritan tiger beetle in the Connecticut river.” **Gwiazdowski, R. A.**, Rhine, D., Robitalle, C. Saudade, R. and Elkinton, J. Northeast Natural History Conference (NENHC), Springfield, MA April 13.
- 2018 “Environmental Controls for Beetle Rearing”. Hannon, K., and **Gwiazdowski, R. A.** Raspberry (and more) Jam!, Massachusetts Green High Performance Computing Center, Holyoke MA, September 29.
- 2018 “Backyard Extinctions - Plight of the Puritan Tiger Beetle”. **Gwiazdowski, R. A.** OEB Science Cafe, Nacul Center, Amherst MA, March 08.
- 2017 “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 “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.
- 2013 “Continent-wide species discovery and description using a multi-locus approach for cryptic taxa.” **Gwiazdowski, R. A.** Department of Biodiversity, Earth & Environmental Science, Drexel University, PA, May 30.
- 2012 “A new method for visualizing phylogenetic trees helps identify cryptic species in a lineage of pine-feeding scale insects (Hemiptera: Diaspididae).” **Gwiazdowski, R. A.** Museum of Comparative Zoology, Harvard University, MA, April 16.

- 2012 “Discovery of cryptic species among North American pine-feeding *Chionaspis* scale insects (Hemiptera: Diaspididae).” **Gwiazdowski, R. A.** Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Canada. March 27.
- 2012 “Discovery of cryptic species among North American pine-feeding *Chionaspis* scale insects (Hemiptera: Diaspididae)”, **Gwiazdowski, R. A.**, ESA: Northeastern Branch, Hartford, CT, March 18.
- 2012 “Discovery of cryptic species among North American pine-feeding *Chionaspis* scale insects (Hemiptera: Diaspididae)”, **Gwiazdowski, R. A.** Biodiversity Institute of Ontario seminar series, Department of Integrative Biology, Univ. of Guelph, Canada. Feb 23.
- 2009 “Cryptic Species Diversity and Evolution of Pine Feeding *Chionaspis* scale insects (Hemiptera, Diaspididae) from across North America”, **Gwiazdowski, R. A.**, and B.B. Normark, Evolution, University of Idaho, June 15.
- 2009 “Mass Rearing of Tiger Beetles in the Laboratory”, **Gwiazdowski, R. A.**, USFWS Bi-annual Endangered Species Recovery meeting, Sandy Hook, NJ. February 18.
- 2009 “Phylogeography, evolution and cryptic diversity of pine-feeding *Chionaspis* (Hemiptera: Diaspididae) across North America” **Gwiazdowski, R. A.**, Part of the Ecology and Botany seminar series, UNAM, México City, México. January 13.
- 2008 “Fine-scale pine scale intraspecific phylogeography across North America (Hemiptera: Diaspididae)”, **Gwiazdowski, R. A.** International Congress of Entomology, Durban, South Africa. July 7.
- 2007 “The Strange and Fascinating Scale Insects”, **Gwiazdowski, R. A.** Botany seminar series, Universidad de Guadalajara, Guadalajara, México. August 29.
- 2005 “Molecular phylogenetics of armored scale insects (Hemiptera: Diaspididae)”, **Gwiazdowski, R. A.**, G.E. Morse, J. C. Andersen & B.B. Normark. ESA, Fort Lauderdale, FL. December 15-18.
- 2005 “Phylogenetic placement and suggested native range of beech scale (Hemiptera: Eriococcidae)”, **Gwiazdowski, R. A.**, A. Desnoyers, R.G. Van Driesche & B.B. Normark. Evolution, University of Alaska, Fairbanks. June 10-14.
- 2004 “Molecular Phylogenetics of Beech Scale, *Cryptococcus fagisuga*”, **Gwiazdowski, R. A.**, B.B. Normark & A. Desnoyers. ESA, SLC, Utah, Nov 14-17.
- 2003 “Captive Rearing Tiger Beetles for Re-introduction: Current efforts, and future plans at Liberty Science Center.” **Gwiazdowski, R. A.** at “Symposium on Invertebrate Conservation in New England”, Silvio O. Conte National Wildlife Refuge Headquarters Turner Falls, M.A., March 28-29. Hartford, CT, March 18.

Poster Presentations

- 2015 “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 “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.

- 2012 “Discovery of cryptic species among Pine-feeding *Chionaspis* scale insects Hemiptera: Diaspididae”, **Gwiazdowski, R. A.**, I. Vea, J. C. Andersen, and B. B. Normark, 23rd USDA Interagency Research Forum on Invasive Species, Annapolis, MD, January 10-13.
- 2012 “Phylogeographic diversity of Winter Moth and Buce Spanworm (Lepidoptera: Geometridae: *Operophtera*)”, **Gwiazdowski, R. A.**, 23rd USDA Interagency Research Forum on Invasive Species, Annapolis, MD, January 10-13.
- 2009 “Phylogeography, evolution and cryptic diversity of pine-feeding *Chionaspis* (Hemiptera: Diaspididae) across North America”, **Gwiazdowski, R. A.**, and B.B. Normark. Internat’l Soc. Of Biogeography, Merida, México. January 8-12.
- 2004 “Mass Rearing of Endangered Tiger Beetles,” **Gwiazdowski, R. A.**, & 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.

SERVICE

Committee Assignments

- 2019 Expert Advisor to the New Brunswick Provincial Government, and the Nature Trust of New Brunswick for research & conservation of the Cobblestone Tiger Beetle in Canada.
- 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 full-time technicians 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.
- 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.
- 2004 Organizer: ”Classic Papers in Ecology & Evolution” - OEB Graduate Program Discussion Group, University of Massachusetts, Amherst.

Professional Outreach & Volunteerism

- 2019 Mentor, Student Conference on Conservation Science (SCCS-NY), Center for Biodiversity and Conservation, American Museum of Natural History. October 2 & 3.
- 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 which 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.

Ad-hoc Reviewer

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

TEACHING EXPERIENCE

- 2020 Instructor, “Insect Conservation” (NRC 397, Spring semester), co-lead with Dr. Jeremy C. Andersen UMass, Amherst
- 2011 & 2004 Teaching assistant, Introductory Biology Lab, UMass, Amherst
- 2010 Teaching assistant, Plant Ecology, UMass, Amherst
- 2006 – 2008 Teaching assistant, NSF-Sponsored Molecular Systematics Lab, UMass, Amherst
- 2005 Teaching assistant, Large lecture, Introductory Biology, UMass, Amherst

MENTORING OF GRADUATE & UNDERGRADUATE RESEARCH

- 2019 – 2020 Mary Apossos, Experimental rearing of the endangered Cobblestone Tiger Beetle *Cicindela marginipennis*. Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
- 2018 – 2019 Caleb Robitaille, Prey diversity and diet breadth of the Puritan tiger beetle. Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
- 2018 – 2019 Robin Saudade, Establishing a life table for the Puritan tiger beetle. Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
- 2017 – 2018 Ainsley Brosnan-Smith, GIS mapping new habitat for the endangered Puritan tiger beetle. Co-advised with Dr. Lena Fletcher, UMass, Amherst.
- 2017 – 2018 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 Dufraigne, Oviposition behavior, and larval ecology of the Puritan tiger beetle. Co-advised with Dr. Joseph Elkinton, UMass, Amherst.
- 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 Chionaspini (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.

INTERNATIONAL FIELD EXPERIENCE

- 2009 Field Collection of insect & botanical specimens: México;
States of MEX, MIC, GUE, OAX, CHP, CAM, YUC.
- 2007 Field collection of insect & botanical specimens: México, almost all states.
- 2006 Field collection of insect & botanical specimens: United States & Canada, 28 States & Provinces.

PROFESSIONAL MEMBERSHIPS/AFFILIATIONS

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

PERMITS

- 2019 State of Massachusetts Division of Fisheries & Wildlife Permit ER-2019-28 for take of live biological material of the Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis*) at Monomoy National Wildlife Refuge, Chatham, Massachusetts.
- 2019 State of Vermont, Agency of Natural Resources, Threatened & Endangered Species Takings Permit, Permit# 032119 for take of live biological material of the Cobblestone Tiger Beetle (*Cicindela marginipennis*), statewide.
- 2019 State of New Hampshire, Fish and Game Department, Permit for take of live biological material of the Cobblestone Tiger Beetle (*Cicindela marginipennis*), statewide.
- 2019 State of Maine, Department of Inland Fisheries and Wildlife, Wildlife Scientific Collection Permit, Permit# 2019-584 for take of live biological material of the Cobblestone Tiger Beetle (*Cicindela marginipennis*), Somerset County.
- 2017 – Present State of New Jersey, Division of Fish & Wildlife (NJFWS) Scientific Collecting Permits permits: SC 2017122; SC 2018040; SC 2019078 - to collect/possess/release the Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis*).
- 2017 – 2018 National Parks Service: United States Department of the Interior (NPS) Scientific Research and Collecting Permit for: "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.
- 2015 – Present USFWS Endangered Species Act Subpermit 01355C-1 for take of the federally threatened Puritan tiger beetle (*Cicindela puritana*) resulting from recovery activities

- 2011– 2014 USDA/APHIS PDEP-11-00107 Permit to Import Prohibited Plant Material for Research Purposes: (*Pinus spp.* Tissue, Cones & Seeds) from México into the United States (expired).
- 2008– 2011 USDA/APHIS PDEP-08-00150 Permit to Import Prohibited Plant Material for Research Purposes: (*Pinus spp.* Seeds, Stems, Pressed specimens for analysis and Herbarium vouchers from México into the United States (expired).
- 2007– 2008 USDA/APHIS PDEP-07-00380 Permit to Import Plant or Plant Products For Experimental Purposes: (*Pinus spp.* Seeds & Stems) from México into the United States (expired).
- 2007 – 2010 USDA/APHIS P526P-07-06063 Permit to Move Live Plant Pests and Noxious Weeds (*Chionaspis pinifoliae*, Adult & Egg) from Canada to the United States (expired).
- 2007 – 2010 USDA/APHIS P526P-07-07263 Permit to Move Live Plant Pests and Noxious Weeds (Exotic Arthropods) for Display Purposes or Insect Zoo (expired).

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