

ALLISON BISTLINE-EAST

Applied Ecology Unit, Centre for Environmental Science, National University of Ireland, Galway

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PERSONAL PROFILE

I am a postgraduate researcher who left behind the sunshine of California to undertake a PhD in Ireland. Between my time as a research technician and pursuing a research MSc and PhD, I have over ten years' experience in applied entomology research. I have experience in research project design and management, as both of my degree projects were self-designed and independently executed, as well as proficiency in a variety of sampling and analytical techniques. My publication record reflects excellent written and verbal communication skills, and I am passionate about community outreach and involvement. I have conducted sustainable agriculture research under both US and EU frameworks, giving me a valuable global insight into research practice and policy. My research interests are in applied entomology and ecologically-based pest management strategies. With combined experience in agroecology field and laboratory/glasshouse research, I offer a highly relevant skillset and am proficient in performing research in a variety of settings.

EDUCATION

- 2015-present **PhD Environmental Science**, National University of Ireland Galway, Galway, Ireland
Supervisor: Professor Michael J. Gormally
Expected completion: August 2019
Thesis: Integrative evaluation of *Tetanocera elata* (Diptera: Sciomyzidae) for pest slug management in Irish agriculture
- 2013-2015 **MSc Entomology**, University of California Riverside, Riverside, CA, USA
Supervisor: Dr Mark S. Hoddle
Thesis: Trophic interactions within a parasitoid guild (Hymenoptera: Chalcidoidea) from Pakistan in the context of Asian citrus psyllid classical biological control in California
- 2004-2008 **BSc Biology**, University of California Riverside, Riverside, CA, USA
Emphasis: Ecology and evolution of invertebrates and terrestrial vertebrates

RESEARCH EXPERIENCE

- 2015-present **Postgraduate Researcher (PhD)**, Applied Ecology Unit, National University of Ireland Galway
Developing a novel conservation and augmentative biological control programme for agriculturally-important slugs in Ireland utilising the native fly *Tetanocera elata*. Projects include investigating ecological requirements of *T. elata*, including microhabitat and adult dietary constraints and evaluating larval prey choice. Field sites in naturally-occurring grasslands and small-scale organic vegetable farms. Visiting research collaboration at Oregon State University (Corvallis, Oregon, USA) analysing genetic variation of *T. elata* populations within Ireland and with the North American species *Tetanocera plebeja*.
- 2013-2015 **Graduate Student Researcher (MSc)**, Department of Entomology, UC Riverside
Performed host range analysis of *Diaphorencyrtus aligarhensis* and composed Environmental Risk Assessment for use as a classical biological control agent of Asian citrus psyllid (*Diaphorina citri*) in California. Discovered and described biology of hyperparasitoids associated within the *D. citri* parasitoid complex. Primarily laboratory-based under USDA-APHIS quarantine protocols, with associated work at urban field sites. Collaborated with California Department of Food and Agriculture researchers and policymakers for project completion.
- 2008-2013 **Laboratory Technician**, Department of Entomology, UC Riverside
Recorded and analysed data from field samples. Conducted regular maintenance and data collection at remote field sites in southern California, including vineyards, farms, university experimental agriculture plots, and forests. Developed effective insect-rearing protocols and maintained colonies of various insects under USDA-APHIS quarantine for use in experiments.
- 2006-2008 **Undergraduate Research Assistant**, Department of Nematology, UC Riverside
Supported ongoing experiments by performing general laboratory tasks including microscopy, specimen slide mounting, and nematode identification to genus via morphology. Designed and executed independent research project surveying biodiversity of nematode populations in an urban estuarine ecosystem in Irvine, CA (USA).

TEACHING EXPERIENCE

- Sept-Dec 2018 **Lecturer**, Ecological Survey Techniques, Environmental Science, NUI Galway
Based on a course description provided by the head of the programme, developed lecture material and practical field exercises for the course. Lectures were delivered as PowerPoint presentations interspersed with group activities and discussion opportunities. Lecture topics included ecology and biodiversity, population ecology, freshwater ecology, and terrestrial invertebrate sampling techniques. Field practicals included vegetation sampling and identification, small mammal trapping for population estimates, and aquatic entomology sampling of indicator species for judging water quality. Created and marked assignments including individual presentations, scientific reports, and exam papers.
- 2018 – present **Demonstrator**, Sustainable Resource Management (MSc), NUI Galway
Led practical field exercises demonstrating invertebrate sampling and habitat restoration and evaluation techniques. Created and delivered lectures of related materials. Provided laboratory support for insect identification and taxonomy.
- 2016-2018 **Lecturer**, Biology, Access Programme, NUI Galway
Developed curriculum for Irish NFQ Level 5 (EQF Level 4) non-traditional students returning to university to complete an undergraduate degree in sciences. Created and delivered lectures in general biology, including topics in human anatomy and physiology, cell biology, genetics, and evolution. Designed and ran laboratory practicals to reinforce concepts of cell biology and human anatomy. Created and marked continuous assessment assignments and exam papers and gave feedback to guide students throughout the course. Managed classrooms with special accommodation for students with physical or specific learning disabilities and mental illness.
- 2015-present **Demonstrator**, Environmental Science (BSc), School of Natural Sciences, NUI Galway
Revised or created laboratory exercises and aided undergraduate students in practicals in laboratories, computer labs, and in the field. Courses include: Bioinformatics, Environmental Census Techniques, Habitat Management Planning, Using Microsoft Excel (tutorial).
- Sept-Dec 2014 **Teaching Assistant**, General Entomology, Department of Entomology, UC Riverside
Assisted with instruction of General Entomology. Delivered class lectures in the professor's absence, managed setup and supervision of instructional labs, graded assignments/exams, wrote lab quizzes/practicals, and held office hours for supplementary student instruction.

PEER-REVIEWED PUBLICATIONS

1. **Bistline-East, A.** and M.J. Gormally. Nutritional ecology of predaceous *Tetanocera elata* (Diptera: Sciomyzidae) larvae and the physiological effects of prey utilisation. *in prep: BioControl*
2. Milosavljević I., K.A. McCalla, **A. Bistline-East**, and M.S. Hoddle. 2019. Threshold temperatures and thermal requirements of *Psyllaphycus diaphorinae* (Hymenoptera: Encyrtidae), a hyperparasitoid of *Diaphorencyrtus aligarhensis* (Hymenoptera: Encyrtidae) and *Tamarixia radiata* (Hymenoptera: Eulophidae). *submitted: Florida Entomologist*
3. D'Ahmed K.S, C. Stephens, **A. Bistline-East**, C.D. Williams, R.J. McDonnell, M. Carnaghi, D.ÓhUallacháin, M.J. Gormally. 2019. Biological control of pestiferous slugs using *Tetanocera elata* (Fabricius) (Diptera: Sciomyzidae): Larval behavior and feeding on slugs exposed to *Phasmarhabditis hermaphrodita* (Schneider, 1859) (Rhabditida: Rhabditidae) with notes on adult egg-laying. *submitted: Biological Control*
4. **Bistline-East, A.**, J.G.J. Carey, A. Colton, M. Day, and M.J. Gormally. 2018. Catching flies with honey(dew): Marsh flies (Diptera: Sciomyzidae) utilize sugary secretions for high-carbohydrate diets. *Environmental Entomology*. doi: 10.1093/ee/nvy155
5. Irvin, N.A., **A. Bistline-East**, and M.S.Hoddle, 2016. The effect of an irrigated buckwheat and vetch cover crop on grape yield, berry quality, vine vigor, and abundance of beneficial insects and grape pests in California. *Biological Control* 93: 72-83. doi: 10.1016/j.biocontrol.2015.11.009
6. **Bistline-East, A.** and M.S. Hoddle. 2015. Biology of *Psyllaphycus diaphorinae* (Hymenoptera: Encyrtidae), a hyperparasitoid of *Diaphorencyrtus aligarhensis* (Hymenoptera: Encyrtidae) and *Tamarixia radiata* (Hymenoptera: Eulophidae). *Annals of the Entomological Society of America* 109(1):22–28.
7. **Bistline-East, A.**, R. Pandey, M. Kececi, and M.S. Hoddle. 2015. Host range testing of *Diaphorencyrtus aligarhensis* (Hymenoptera: Encyrtidae) for use in classical biological control of *Diaphorina citri* (Hemiptera: Liviidae) in California. *Journal of Economic Entomology* 108(3):940-950.
8. **Bistline-East, A.** and M. S. Hoddle. 2014. *Chartocerus* sp. (Hymenoptera: Signiphoridae) and *Pachyneuron crassiculme* (Hymenoptera: Pteromalidae) are obligate hyperparasitoids of *Diaphorencyrtus aligarhensis* (Hymenoptera: Encyrtidae) and possibly *Tamarixia radiata* (Hymenoptera: Eulophidae). *Florida Entomologist* 97(2): 562-566.

INDUSTRY & OUTREACH PUBLICATIONS

1. **Bistline-East, Allison.** 11 Jan 2016. *Psyllaphycus diaphorinae*: Another natural enemy from Pakistan for ACP biocontrol? Center for Invasive Species Research blog. <http://cistr.ucr.edu/blog/psyllids/psyllaphycus-diaphorinae-another-natural-enemy-from-pakistan-for-acp-biocontrol/>.
2. Hoddle, M.S., **A. Bistline-East**, C.D. Hoddle, and M. Lewis. 2015. Enlisting a second natural enemy species for ACP biocontrol. *Citrograph* 6 (2): 58-63.

CONFERENCE PAPERS

1. **Bistline-East, A.** and M.J. Gormally. Molluscs on the menu: Predation behaviour and preference of the slug-killing fly *Tetanocera elata* (Diptera: Sciomyzidae). 2nd Ecology & Evolution Ireland Conference. National University of Ireland Galway, Ireland. 10 – 12 Jan 2019.
2. **Bistline-East, A.**, A. Volpato, and M.J. Gormally. Fitness factors: Effect of diet and cage structure on longevity and fecundity of adult *Tetanocera elata* (Diptera: Sciomyzidae). 66th Annual Meeting, Entomological Society of America (jointly with ESC and ESBC). Vancouver, BC, Canada. 11-14 November 2018. (virtual poster)
3. **Bistline-East, A.** and M.J. Gormally. Molluscs on the menu: Prey preference and predating behaviours of a slug-killing fly. XI European Congress of Entomology. Naples, Italy. 2-6 July 2018. (poster)
Student prize: Best Poster
4. **Bistline-East, A.**, J.G.J. Carey, A. Colton, D. Naughton, and M.J. Gormally. Catching flies with honey(dew): Determination of sugar-rich dietary components of marsh flies (Diptera: Sciomyzidae), potential biocontrol agents of pestiferous molluscs. ENTO'17. Newcastle University, Newcastle upon Tyne, UK. 12-14 Nov 2017.
5. **Bistline-East, A.** and M.J. Gormally. Habitat surveys for *Tetanocera elata* (Diptera: Sciomyzidae) to develop sustainable slug pest management in Ireland. 1st Ecology and Evolution Ireland Conference. Institute of Technology Sligo, Ireland. 24-26 Nov 2016.
6. **Bistline-East, A.** and M.J. Gormally. Field collections and habitat surveys of *Tetanocera elata* (Diptera: Sciomyzidae) to develop sustainable slug pest management in Ireland. XXV International Congress of Entomology. Orlando, Florida, USA. 25-30 Sept 2016.
7. **Bistline-East, A.** and M.S. Hoddle. Host range evaluation of *Diaphorencyrtus aligarhensis* (Hymenoptera: Encyrtidae) for biological control of Asian citrus psyllid in California. Colloquium for Animal and Plant Ecological Research. National University of Ireland, Galway, Ireland. 4 Dec 2015.
8. **Bistline-East, A.** and M.S. Hoddle. *Psyllaphycus diaphorinae*: a new enemy for ACP biocontrol? Colloquium for Animal and Plant Ecological Research. National University of Ireland, Galway, Ireland. 4 Dec 2015. (poster)
9. **Bistline-East, A.** and M.S. Hoddle. Host range evaluation of *Diaphorencyrtus aligarhensis* (Hymenoptera: Encyrtidae) for biological control of Asian citrus psyllid in California. 99th Annual Meeting, Pacific Branch Entomological Society of America. Coeur d'Alene, Idaho, USA. 12-15 Apr 2015.
Student prize: 1st Place, oral presentation (P-IE)
10. **Bistline-East, A.** and M.S. Hoddle. Is *Psyllaphycus diaphorinae* a primary parasitoid of Asian citrus psyllid? Citrus Research Board Biocontrol Task Force Meeting, Riverside, California, USA. 4 Dec 2014.
11. **Bistline-East, A.** and M.S. Hoddle. Assassins Unmasked: Revealing the biology of the hyperparasitoid *Psyllaphycus diaphorinae*. 62nd Annual Meeting, Entomological Society of America. Portland, Oregon, USA. 16-19 Nov 2014.
12. **Bistline-East, A.** and M.S. Hoddle. Determining the host range of *Diaphorencyrtus aligarhensis*, a parasitoid of Asian citrus psyllid. University of California, Riverside Entomology Department Student Seminar Day. Riverside, California, USA. 25 Sept 2014.
13. **Bistline-East, A.** and M.S. Hoddle. Hyper Alert: Confirming two Pakistani wasps are hyperparasitoids of valuable ACP biological control agents. 98th Annual Meeting, Pacific Branch Entomological Society of America. Tucson, Arizona, USA. 6-9 Apr 2014. (poster)
14. **Bistline, A.** and M.S. Hoddle. *Chartocerus* sp. (Hymenoptera: Signiphoridae) and *Pachyneuron crassiculme* (Hymenoptera: Pteromalidae): obligate hyperparasitoids within the *Diaphorina citri* (Hemiptera: Liviidae) system in Pakistan. University of California, Riverside Entomology Department Student Seminar Day. Riverside, California, USA. 19 Sept 2013.

FELLOWSHIPS & GRANTS

- 2018 Thomas Crawford Hayes Research Fund, National University of Ireland Galway (€3,468)
- 2017 Thomas Crawford Hayes Travel Fund, National University of Ireland Galway (€570)
- 2016 Ryan Institute Travel Support Scheme, Martin Ryan Institute
- 2016 Training and Travel Grant, British Ecological Society (£500)
- 2016 Thomas Crawford Hayes Research Fund, National University of Ireland Galway (€4,974)
- 2016 Government of Ireland Postgraduate Research Fellowship, Irish Research Council (€72,000)
- 2015 Student Travel Grant, Entomological Society of America
- 2015 Hardiman Research Scholarship, National University of Ireland Galway (€82,100)
- 2013 Dean's Distinguished Graduate Fellowship, University of California Riverside (\$67,273)
- 2004 Chancellor's Scholarship, University of California Riverside (\$6,133)
- 2004 Student Alumni Association Scholarship, University of California Riverside (\$4,000)

AWARDS

- 2018 Student Presentation Award (Best Poster), European Congress of Entomology
- 2015 First Place Presentation, Pacific Branch Entomological Society of America Student Competition
- 2004 Honors Program housing stipend, University of California Riverside

SERVICE & OUTREACH

- 2019 Galway Event Coordinator, Pint of Science Ireland
- Sept 2018 Speaker, PubhD Galway
- Sept 2018 "Insects and agriculture" farm talk (invited), Beechlawn Organic Farm Open Day, Ballinasloe, IE
- 2018 Galway Regional Coordinator, Pint of Science Ireland
- 2017-2018 Field Based Research cluster meeting co-curator, NUI Galway
- Sept 2017 "Slugs & the flies that eat them" outreach seminar (invited), Go Wild! Galway
- July 2017 Support and logistics volunteer, Soapbox Science (Galway)
- 2016-present Student research mentor (undergraduate and MSc), Environmental Science, NUI Galway
- 2016-2017 Demonstrator, "Science Experience!" NUIG Open Day events, Microbiology, NUI Galway
- Dec 2015 Organising Committee member, Colloquium for Animal and Plant Ecological Research NUIG
- Apr 2015 Co-chair, 1st Annual Riverside Insect Fair
- Jan 2015 Judge, Riverside Unified School District Science Fair
- 2013-2015 Public education outreach volunteer, UCR Entomology Graduate Student Association

PROFESSIONAL DEVELOPMENT & CERTIFICATIONS

- » "Presenting Research with Confidence" Hugh Kearns seminar, NUI Galway (February 2019)
- » Fieldwork First Aid certification, NUI Galway (November 2018)
- » The Diverse Classroom and Inclusive Teaching Practice workshop, NUI Galway (Jan 2018)
- » Research Integrity training, NUI Galway Career Support & Development Seminar Series (May 2017)
- » Teaching & Learning certification, NUI Galway (April 2017)
- » Invasive Non-native Species certification, Great Britain Non-native Species Secretariat (February 2017)
- » "Invasive non-native species and the law, regulations and policy in the UK and Ireland – a keep out of jail webinar", CIEEM online seminar (Jan 2017)
- » Code School R online programming course (<https://www.codeschool.com/courses/try-r>) (Dec 2015)
- » Process Oriented Guided Inquiry Learning (POGIL) Instructor Development Workshop Certified (May 2015)

PROFESSIONAL ORGANISATIONS

- 2016-present British Ecological Society (student member)
- 2013-present Entomological Society of America, International Branch (student member)

TECHNICAL SKILLS

- » Ecological sampling and analysis techniques
- » Biological control design and implementation
- » GIS and habitat mapping (QGIS, ArcGIS)
- » EthoVision XI video capture & analysis
- » Insect colony propagation & management
- » Statistical analysis in R (R Studio)
- » PCR and primer design
- » Genetic sequencing, editing, & annotation
- » Bioinformatics, BLAST functions
- » ELISA techniques
- » Original research project design & management
- » Scientific writing
- » Mentoring & leadership
- » Lecture design & classroom management
- » Excellent public speaking & presenting skills
- » Expert proficiency with MS Office programs