

Newsletter of the Department of Zoology, Trinity College Dublin

NEW PEOPLE

Dr. Courtney Gorman
Postdoctoral Researcher
Buckley Group

I'm Courtney and I have recently joined Yvonne Buckley's group as a post-doctoral researcher. I received a PhD from the University of Konstanz, Germany in February 2021, where I worked on the evolutionary ecology of self-compatibility in *Arabidopsis lyrata*. I have broad interests in the evolution of plant mating systems, life-history, and functional traits. I'm looking forward to getting to know everyone!

**Dr. Mat Cobain**
Postdoctoral Researcher
Jackson Group

I'm Mat, and I recently joined Andrew Jackson's group as a Postdoctoral Researcher as part of the 'webtracer' project. I completed my PhD in marine ecology in 2018 at the University of Southampton, quantifying fish community dynamics using fisheries survey data and stable isotope approaches. I then undertook a Postdoc at Newcastle University (UK, not Australia unfortunately) as part of the Changing Arctic Ocean program on the Coldfish project, exploring through stable isotopes how Arctic fish communities are structured. I come to webtracer to add some empirical flare to the theoretical stable isotope work developed by Andrew's group, exploring and testing ideas of food web structure and function on real-world datasets.



Elias Bizet
PhD Student
Luijckx Group

I'm Elias and this year I started my PhD supervised by Pepijn Luijckx and Tsukushi Kamiya. I will be working on how temperature and temperature variation affect host and parasite life-traits and epidemiology using an animal model (the water flea, *Daphnia magna*). I recently finished a Biology, Ecology and Evolution Master's at the University of Burgundy Franche-Comte in France, where I completed two internships focused on host-parasite interactions and how these may be affected by climate change. I'm looking forward to meeting everyone in person!

ZOOLOGY IN THE NEWS

Nature+Energy

The [Nature+Energy](#) Project, led by **Dr Ian Donohue**, **Prof Yvonne Buckley** and Prof Jane Stout, has recently featured in the [Irish Times](#). The €1 million SFI-funded project was co-funded by eight industry partners, and aims to enhance the co-benefits of biodiversity on on-shore wind farms. **Dr Aoibheann Gaughran** is Project Manager on the project.

Moving in the womb

Research led by **Dr. Rebecca Rolfe** shows that embryonic movement post-paralysis can partially recover specific aspects of joint development, with potential to inform therapeutic approaches to reduce the impact of restricted fetal movement *in utero*. The work was [featured in the news](#), and Rebecca [gave an interview](#) for the journal *Disease Models & Mechanisms*, where the work was published.

Open call for news

Prof. Yvonne Buckley is a [monthly science columnist for the Irish Times](#) and has covered topics such as restoration, biodiversity, nature-based solutions for carbon capture and storage, food history, and zoo collections. She says *"I am always looking for interesting new science projects, papers or connections with society to write about. I have written about research by members of TCD Zoology so do let me know if you have something interesting to share."*

THE ZOOLOGY MUSEUM: DID YOU KNOW?

“On the 26th of May 1851, a letter to the then Director of the (Zoological) Museum, **Robert Ball** (1844 – 1857), addressed the subject of the alleged burrowing habits of the Acorn barnacle (*Tubicinella trachealis*). Previous correspondence between the two naturalists, questioned the practised belief that the cirripede penetrated the skin of its host—in this case, a species of whale—by burrowing. The author, through dissection, had concluded that ‘*the cirripedes did not in fact penetrate the skin, but that the surrounding parts of the skin of the Cetacea grow upwards, the part immediately under the cirripede not growing or even being absorbed by the action of the downward pressure of the cirripede which grows at its base*’.

The letter received by Robert Ball, became one of several communicated to him and later, to **E.P Wright** (Director of the Museum, 1858-1869). The author of the original letter to Ball subsequently published a book that would become the foundation for modern evolutionary studies. His name was Charles Darwin.

You can see the actual specimen of *Tubicinella trachealis* (on the skin of whale) in the last cabinet on the right as you approach the Zoological Museum.” **Dr. Martyn Linnie**



Tubicinella trachealis specimen on whale skin.

WHERE ARE THEY NOW?



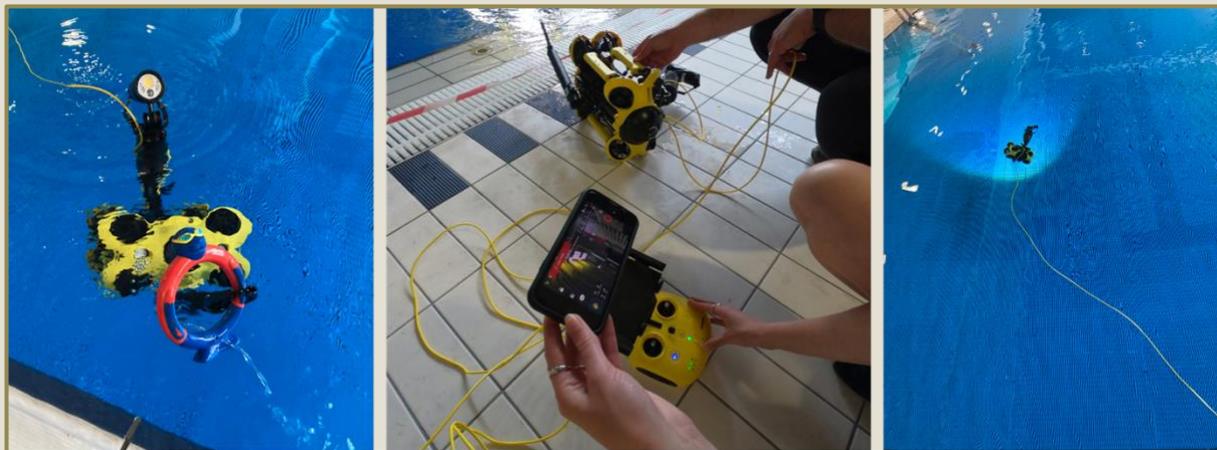
Geoff Hamilton
BA (2000), MSc (2005)
Senior Ecologist

Geoff completed his MSc on red squirrel ecology in 2005. He is currently Senior Ecologist with ESB, based in Engineering and Major Projects. He is responsible for the ecological assessment of new developments and ongoing operational activities of ESB, across the company’s thermal, hydroelectric, and wind assets, as well as the transmission and distribution networks. Most recently, Geoff has been developing ESB’s biodiversity strategy, including taking inventory of habitats and species on ESB lands and facilitating the company’s engagement with schemes such as the All-Ireland Pollinator Plan and Nature+Energy. “It’s a fascinating job that takes me to some stunning locations all over the country. The next decade will be transformative as Ireland shifts to various renewable forms of energy, and it’s great to be involved in so many of these projects.”

RESEARCH UPDATES

Surveying kelp beds and seaweed farms using drones

Members of **Dr. Nessa O'Connor's** group recently tested their newly-acquired underwater drone, to be used in the [Beyond biofuel seaweed cultivation project](#). The team plans to use the drone for surveying natural kelp beds and commercial seaweed farms along the west coast of Ireland to monitor the potential effects of seaweed cultivation on benthic ecosystems. The drone can record HD videos, pick up items, and even has a cutting tool developed for taking kelp samples. An initial test in the Trinity pool went well, and the team are now planning further open water tests before using the drone in the field.



Hepatic ascariasis in a mouse model of relative susceptibility

Dr. Gwen Deslyper was awarded her PhD entitled "*Hepatic ascariasis in a mouse model of relative susceptibility*" on the 5th of May 2021. Congratulations Gwen!

General mechanisms of non-additivity between multiple stressors

James Orr submitted his PhD thesis in March. His research, which was supervised by **Dr. Jeremy Piggott**, **Dr. Andrew Jackson** and **Dr. Jean-François Arnoldi**, explored general mechanisms of non-additivity between multiple stressors. James has now started as a postdoctoral researcher in Dr. Michelle Jackson's lab at the University of Oxford where he will continue to study the ecological impacts of multiple stressors. Congratulations James!

Understanding transmission of avian influenza to farmed poultry

Michael Officer has been awarded a Laidlaw scholarship and will undertake his project on "Understanding transmission of avian influenza to farmed poultry: Roles of biosecurity measures, wildlife interaction and ecological factors" under the supervision of **Prof. Celia Holland**.

Thinking inside the Box

Tallulah Davey, Katrin Schertenleib, Frank Spellman, and Jessie Dolliver secured funding from the UNI ECO Green Challenges for a project named 'Thinking Inside the Box', to establish novel habitats for insects, bats and birds on Trinity College's campus to enhance and support local biodiversity.

Endothermy makes fishes faster but does not expand their thermal niche

Lucy Harding published the first paper from her PhD in *Functional Ecology*. Her work alongside a team of international marine biologists shows that regionally endothermic fishes swim approx. 1.6 times faster than their ectothermic counterparts, but do not encounter broader temperature ranges. [Read more here.](#)

ON THE [ECOevo@TCD BLOG](#)

[Happy World Tuna Day!!](#)

Silvio Solleliet

On World Tuna Day (who knew?!) Silvio takes a look at the ecology and behaviour of the Atlantic Bluefin Tuna, *Thunnus thynnus*, found in the seas around Ireland.

[How green is your lab? Simple steps towards sustainable science!](#)

Tallulah Davey

Adopting green lab practices and rethinking research can significantly reduce a lab's carbon footprint, and it's needed now more than ever. Here, Tallulah discusses some simple steps labs can take to be more sustainable.

[The Socio-economic theory of animal abundance](#)

Dr. Jacinta Kong

Here Jacinta takes a light-hearted look at whether and how animals might distribute based on accrual of wealth and social capital using an enigmatic example: the Australian ghost crab (*Ocypode cordimana*).

Read these blog posts and more on the award-winning [EcoEvo@TCD blog](#).

LATEST PUBLICATIONS

Bortoluzzi, J., Darby, J., Jackson, A.L. (2021). Technological advances in stable isotope analysis provide ever more insights into animal ecology. *Journal of Animal Ecology* **90**, 1394–1397. doi: [10.1111/1365-2656.13510](https://doi.org/10.1111/1365-2656.13510)

Clark, A.T, **Donohue, I. et al.** (2021) General statistical scaling laws for stability in ecological systems. *Ecology Letters* **24**: 1474-1486. <https://doi.org/10.1111/ele.13760>

Coscieme, L., Mortensen, L.F. & Donohue, I. (2021) Enhance environmental policy coherence to meet the Sustainable Development Goals. *Journal of Cleaner Production* **296**: 126502. <https://doi.org/10.1016/j.jclepro.2021.126502>

Crowley, D., **Penk, M.R.**, Macaulay, S., & **Piggott, J.J.** (2021) Acute toxicity of the insecticide cypermethrin to three common European mayfly and stonefly nymphs. *Limnologica* **88**, 125871. doi: [10.1016/j.limno.2021.125871](https://doi.org/10.1016/j.limno.2021.125871)

Deslyper, G., Murphy, D.M., Sowemimo, O.A., **Holland, C.V.**, & Doherty, D.G. (2021) Distinct hepatic myeloid and lymphoid cell repertoires are associated with susceptibility and resistance to *Ascaris* infection. *Parasitology* **148** (5), 539-549. doi: [10.1017/S0031182021000020](https://doi.org/10.1017/S0031182021000020)

Firth, L.B... & **O'Connor, N.E.** (2021) On the diversity and distribution of a data deficient habitat in a poorly mapped region: the case of *Sabellaria alveolata* L. in Ireland. *Marine Environmental Research*: 105344. doi: [10.1016/j.marenvres.2021.105344](https://doi.org/10.1016/j.marenvres.2021.105344)

Firth, L.B., **O'Connor, N.E. et al.** (2021) Specific niche requirements underpin multidecadal range edge stability, but may introduce barriers for climate change adaptation. *Diversity and Distributions* 27:668-683. doi: [10.1111/ddi.13224](https://doi.org/10.1111/ddi.13224)

Gilson, A.R., Smale, D.A. & **O'Connor, N.E.** (2021) Ocean warming and species range shifts affect rates of ecosystem functioning by altering consumer–resource interactions. *Ecology* **102**, e03341. doi: [10.1002/ecy.3341](https://doi.org/10.1002/ecy.3341)

Harding, L. et al. [including **Jackson, A., Donohue, I., & Payne, N.**] (In press). Endothermy makes fishes faster but does not expand their thermal niche. *Functional Ecology*. doi: [10.1111/1365-2435.13869](https://doi.org/10.1111/1365-2435.13869)

Holland, C.V. (2021). The long and winding road of *Ascaris* larval migration: the role of mouse models. *Parasitology*. doi: [10.1017/S0031182021000366](https://doi.org/10.1017/S0031182021000366) [Note this will form part of a special issue co-edited by **Prof. Celia Holland**]

Hovel, K.A., **O'Connor, N.E. et al.** (2021) Joint effects of patch edges and habitat degradation on faunal predation risk in a widespread marine foundation species. *Ecology* **102**, e03316. doi: [10.1002/ecy.3316](https://doi.org/10.1002/ecy.3316)

Kelly, D.J., Mullen, E., **Good, M.** (2021) Bovine tuberculosis: the emergence of a new wildlife maintenance host in Ireland. *Frontiers in Veterinary Science*. doi: [10.3389/fvets.2021.632525](https://doi.org/10.3389/fvets.2021.632525)

- Kelly, R.** *et al.* [including **Healy, K., Baudraz, M.E., Jackson, A.L., & Buckley, Y.M.**] (2021) Climatic and evolutionary contexts are required to infer plant life history strategies from functional traits at a global scale. *Ecology Letters* **24**, 970-983. doi: [10.1111/ele.13704](https://doi.org/10.1111/ele.13704)
- Orr, J.A., Luijckx, P., Arnoldi, J-F., Jackson, A.L., & Piggott, J.J.** (2021) Rapid evolution generates synergism between multiple stressors: linking theory and an evolution experiment. *Global Change Biology*. doi: [10.1111/gcb.15633](https://doi.org/10.1111/gcb.15633)
- Orr, J.A., Piggott, J.J., Jackson, A.L., & Arnoldi, J-F.** (2021) Scaling up uncertain predictions to higher levels of organisation tends to underestimate change. *Methods in Ecology and Evolution*. doi: [10.1111/2041-210X.13621](https://doi.org/10.1111/2041-210X.13621)
- Rolfe, R.A., Scanlon O'Callaghan, D., & Murphy, P.** (2021) Joint development recovery on resumption of embryonic movement following paralysis. *Disease Models & Mechanisms* **14**, dmm048913. doi: [10.1242/dmm.048913](https://doi.org/10.1242/dmm.048913)
- Roma⁺, J., **Schertenleib⁺, K.** *et al.* (2021) Moderately elevated temperatures increase macroalgal food consumption in two sea urchin species from coastal waters of Madeira. *Journal of Experimental Marine Biology and Ecology* **542-543**, 151603. doi: [10.1016/j.jembe.2021.151603](https://doi.org/10.1016/j.jembe.2021.151603) [*joint first authorship].
- Ross, S.R.P-J., Suzuki, Y., Kondoh, M., Suzuki, K., Villa Martín, P., Dornelas, M.** (2021) Illuminating the intrinsic and extrinsic drivers of ecological stability across scales. *Ecological Research* **36(3)**, 364-378. doi: [10.1111/1440-1703.12214](https://doi.org/10.1111/1440-1703.12214)
- Van Sundert, K., **Buckley, Y.M., Donohue, I.** *et al.* (2021) Fertilized graminoids intensify negative drought effects on grassland productivity. *Global Change Biology* **27**: 2441-2457. <https://doi.org/10.1111/gcb.15583>
- West, A., **Penk, M.R.,** Larney, R., & **Piggott, J.J.** (2021) Responses of macroinvertebrates to industrial warm discharges: the River Shannon case study (Ireland). *Inland Waters*. doi: [10.1080/20442041.2021.1904761](https://doi.org/10.1080/20442041.2021.1904761)
- Whalen, M.A., **O'Connor, N.E.** *et al.* (2020). Climate drives the geography of marine consumption by changing predator communities. *Proceedings of the National Academy of Sciences* **117**, 28160-28166. doi: [10.1073/pnas.2005255117](https://doi.org/10.1073/pnas.2005255117)

*Zoology affiliations highlighted in bold.

OTHER ACTIVITIES

Dr. Hannah White will commence a new job as lecturer in Life Sciences at Anglia Ruskin University, UK in July 2021.

Dr. Maureen Williams will commence her new job as a lecturer in Biology at McDaniel College, Maryland, USA in August 2021.

In November, **Sam Ross** will commence a joint position as a Postdoctoral Scholar and a Canon Foundation in Europe 2021 Research Fellow at the Okinawa Institute of Science and Technology, in Japan. Sam will be based in the new Integrative Community Ecology Unit led by Dr. Dave Armitage.

Prof. Celia Holland and **Prof. Yvonne Buckley** were invited panel members at the TCD International Women's day event on March 8th for the session on "The Visibility of Role Models in STEM: Interviews with STEM colleagues".

Tallulah Davey secured green lab funding for **Dr. Nessa O'Connor's** mesocosm facility from a competition run by Trinity's Faculty of STEM to celebrate Green week. The green lab funding will help to reduce resource consumption and the lab's overall footprint.

Prof. Yvonne Buckley's submissions on biodiversity and nature based solutions were included in the final text of Ireland's landmark [Climate Action and Low Carbon Development \(Amendment\) Bill](#). This Bill supports Ireland's transition to Net Zero and a climate neutral economy by 2050. The Bill places on a statutory basis a national climate objective which commits to pursue and achieve no later than 2050, the transition to a climate resilient, biodiversity-rich, environmentally sustainable and climate-neutral economy. Biodiversity expertise will be included on the Climate Change Advisory Council and funds from the National Oil Reserves Agency levy can be used to support nature-based projects that enhance biodiversity and seek to reduce, or increase the removal of, greenhouse gas emissions or support climate resilience in the State.



Sam Ross won a photo competition hosted by *Wildlife Acoustics* for his photo of a cicada in Okinawa, Japan. Sam's acoustic research has shown how loud cicada choruses can disrupt the effectiveness of the acoustic indices used for monitoring soundscapes.

Prof. Yvonne Buckley led a report on the implementation of the National Biodiversity Action Plan with a series of recommendations for making the next Biodiversity more focussed on biodiversity impact www.biodiversityimpactplan.ie

Lucy Harding, Jenny Bortoluzzi and **Dr. Andrew Mooney** put together a symposium called *Pride in Research* to mark Pride Month and showcase the range of amazing research being done by members of the LGBTQ+ community in Trinity. The event included 11 brilliant speakers (from undergraduates to professors), 3 invited plenaries, and a TCD Student Counselling-led workshop. The event was well received by all and was commended by the Royal Irish Academy.

Dr. Aoibheann Gaughran and **Prof. Celia Holland** were each nominated by their students as their favourite “Trinity Women in science” for 2021. Congratulations both!

Edited By Sam Ross (@SamRPJRoss)

Do you have news to share in the next issue of Zoobytes? Whether staff or student, if you have news (big or small!) get in touch with me on [rossa\[at\]tcd.ie](mailto:rossa[at]tcd.ie) using the email subject “Zoobytes.”

Are you a Zoology Alumnus doing something interesting? We’d love to hear what you’re up to and include you in the next issue’s *Where are they now?* section.

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