

## Newsletter of the Department of Zoology, Trinity College Dublin

## NEW PEOPLE

**Dr. Mason Dean**  
**Assistant Professor**

I'm a new Assistant Professor in Zoology, originally from the USA, but with a decade-long detour living and working in Germany at a materials science institute. I'm a marine biologist and anatomist, interested in form-function relationships in animals, with a particular focus on skeletons and biomechanics of fishes (basically a fancy way of saying I'd always rather be near the ocean...!) I'm looking forward to getting to know you all!

**Silvia Blanco**  
**PhD Student**  
**O'Connor Group**

I'm a PhD candidate joining Nessa O'Connor's group as part of the SFI funded *Beyond Biofuel* project. My research will conduct genetic analysis and investigate the eco-physiological and biochemical profile of various species of macroalgae present in Ireland, to develop a new biomedical product out of seaweed. In 2018, I moved to Ireland to join the Bantry Marine Research Station Ltd. where I worked as part of a nationally-funded project looking at seaweed biomass cultivation and bioactives characterisation. I hold a BSc in Environmental Sciences and an MSc in Aquaculture and Fisheries from the University of the Algarve in Portugal. I have also participated in numerous environmental and educational projects across various countries about particular sustainability challenges. However, my main interest is sustainable aquaculture, especially seaweed cultivation, a field where I hope to expand my career.

**Clinton Haarlem**  
**PhD Student**  
**Jackson Group**

I'm Clinton and I recently started my PhD with Dr. Andrew Jackson, Dr. Redmond O'Connell and Dr. Kevin Mitchell. I will be working on a project titled "Ümwelt – testing the evolutionary consequences of variation in temporal perception ability." I completed my MSc degree in Zoology at Leiden University, The Netherlands. Previously, I worked on projects looking into cognition in apes and different bird species, the breeding ecology of a non-native bird species in The Netherlands and the identification of disease carrying mosquitoes in South-Africa.



**Dr. Matthias Schmid**  
**Postdoctoral Researcher**  
**O'Connor Group**

I'm Matthias, and I'm joining Nessa O'Connor's group as a Post-Doctoral Researcher as part of the new seaweed cultivation project "*Beyond Biofuel*". I received a PhD from NUIG in 2016, investigating the variability of bioactive compounds in seaweeds in response to environmental stressors. After finishing my PhD, I have been working in the group of Prof. Catriona Hurd at the University of Tasmania, Australia. There, my main research focus has been on the impacts of climate change on eco-physiology and the nutritional properties of seaweeds as well as working on kelp aquaculture. As part of the "*Beyond Biofuels*" team, I will be investigating the role of seaweed aquaculture for climate change mitigation and its contribution to ecosystem services.

**Frank Spellman**  
**PhD Student**  
**O'Connor Group**

This year I joined the O'Connor lab as a PhD student with the Beyond Biofuel project, finding ways to improve kelp cultivation methods in Ireland. I completed my undergraduate degree in Zoology at UCD and previous experiences include monitoring wild Pacific salmon returns and salmon hatchery operations in Alaska. I am passionate about all things ecology and conservation stemming from my love for the outdoors and angling. I look forward to contributing to and learning from the Zoology Department over the next 4 years.



## ZOOLOGY IN THE NEWS

**Rapid Evolution:** Fionn Ó Marcaigh's PhD paper on cryptic sexual dimorphism in the Sulawesi Babbler was covered by multiple [science blogs](#) as well as [the Irish Independent](#).

**Áras an Uachtaráin Biodiversity Audit:** The Áras an Uachtaráin Biodiversity Audit report was featured in an Irish Times article [here](#). See more below!

**Humans of Biosciences:** Dr. Jacinta Kong was profiled by her alma mater (University of Melbourne) in their engagement campaign. Read the interview [here](#).

### **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?

"Many of you will be aware of our beautiful collection of glass models of marine invertebrates made by Leopold and Rudolph Blaschka during the period 1863-1890. The models, renowned for their anatomical accuracy, intricate detail and superb craftsmanship, were purchased as teaching aids for universities and museums throughout the world.

Much of the Blaschka work was influenced by the naturalist Philip Henry Gosse. His *Actinologia Britannica* (1860) showed animals in their natural habitat, and the Blaschkas' early models provided a three-dimensional interpretation of Gosse's illustrations.

But did you know that Gosse was a friend of **E.P. Wright**, Director of the Zoological Museum (1858-1869)? It appears that they frequently corresponded and exchanged material. Some of Wright's specimens of crabs (collected in the Seychelles) can be seen in the cabinet opposite the glass models.

In addition to his many famous works on marine biology, Gosse is also credited with coining the term 'aquarium' and as the innovator of the very first public marine aquarium at London Zoo in 1853." **Dr. Martyn Linnie**



*Blaschka glass model of jellyfish, Zoological Museum, TCD (c. 1870)*

## WHERE ARE THEY NOW?

### **Katie O'Brien** **Undergraduate Zoology (Graduated 2018)** **PhD student**

Katie graduated from Zoology in 2018. Now she's doing a PhD with Dr. Jane Younger at the University of Bath, UK. "Right now, I'm focusing on how microbes in the penguin gut vary between populations and species depending on their local diet, climate, and phylogeny, to explore how organisms adapt to local environmental conditions. Then I'll see how climate change projections may affect the diversity and composition of the penguin gut, with a focus on predicting the spread of potentially harmful pathogens and parasites."





**Dr. Peter Stuart**  
**Postdoctoral Fellow (2015-2019)**  
**Assistant Lecturer**

Dr. Peter Stuart was a postdoctoral fellow with **Prof. Celia Holland** from 2015-2019. In 2019 he started as a full-time Assistant Lecturer in the Biological and Pharmaceutical Sciences department in the Institute of Technology Tralee (now Munster Technological University). He is currently the EPA-funded Irish lead on the Biodiversa project BioRodDis, which aims to investigate the relationship between biodiversity and disease. This project recently received further funding from the European Green Deal to investigate coronavirus diversity in wild bats and rodents. Peter is part of the REFOHCUS (Reimagining the Future - One Health, COVID and Us) project, with colleagues from UCD, which received funding in December 2020, from the SFI Discover programme.

## RESEARCH UPDATES

### Áras an Uachtaráin Biodiversity Audit

**Dr. Aoibheann Gaughran** and Prof. Jane Stout (Botany) recently presented the results of a yearlong study of biodiversity at Áras an Uachtaráin to President Michael D. Higgins. Nearly 300 species of plant, ~200 species of fungi, >50 species of bird, and ~250 species of invertebrates were identified and recorded on the site. The report also revealed that Áras an Uachtaráin is home to the majority of our Irish bat species, who utilise its woodlands, pastures and pond. The aim of the study was to assess the biodiversity on the site to provide a baseline for tracking change, and to make recommendations for maintaining and improving the site's habitats for



native flora and fauna, some of which are already being implemented by the Office of Public Works. You can read the full report [here](#).

### Helminth parasite ecology of invasive species: a freshwater fish system

**Paula Tierney** submitted her PhD thesis in November 2020. The project, supervised by **Prof. Celia Holland** and funded by Inland Fisheries Ireland and Trinity College, explored the helminth parasite community of the invasive freshwater fish, common dace (*Leuciscus leuciscus*), and invasion-associated impacts on helminth parasite infection in the sympatric native fish, brown trout (*Salmo trutta*) in Ireland.



### The value of *ex situ* collections for global biodiversity conservation in the wild

**Dr. Andrew Mooney** successfully defended his PhD in December. Andrew has been a member of **Prof. Yvonne Buckley's** group for the last four years co-supervised by **Dr. Kevin Healy** (NUIG) and Dr. Dalia Conde (Species360). His work spanned topics ranging from analysing zoo visitor attendance (read more [here](#)), the influence of flock size on flamingo reproduction, de-extinction

in plants, and prioritising species for genetic rescue—for which he received a Fulbright Scholarship to work with the San Diego Zoo Institute for Conservation Research (read [here](#)). Across all projects, Andrew's work has highlighted the importance of globally shared data and their potential to influence conservation and management. The viva voce exam was overseen by **Dr. Andrew Jackson** and Dr. Simon Dowell (Chester Zoo).

## ON THE [ECOevo@TCD BLOG](#)

### [The Opti-Mum condition: How brown bears use humans to prolong maternal care](#)

**Sabrina Teo**

A 2019 paper by Joanie Van de Walle and colleagues describes two alternate reproductive strategies for brown bears in Sweden. Sabrina discusses the trade-off bears face, between earlier re-mating (increasing offspring numbers) and longer maternal care (increasing offspring survival).

### [How Being Obvious Can Make You Discrete](#)

**Isabel Walsh**

In a paper by Karl Loeffler-Henry and colleagues, the authors discuss 'flash behaviour', where animals make themselves temporarily more obvious, undermining their camouflage. Isabel discusses the paper, telling us why this might be the case.

### [Separating signal from noise in acoustic biodiversity surveys](#)

**Sam Ross**

Sam published the first paper from his PhD, discussing the effectiveness of “acoustic indices” as estimates of biodiversity calculated from acoustic monitoring studies. The authors show that human noise pollution, the sound of heavy wind and rain, and cicada choruses all interfere with the ability of these indices to reflect the number of species in audio recordings.

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

## LATEST PUBLICATIONS

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Borer, E.T. *et al.* [including **Donohue, I.**] (2020) Nutrients cause grassland biomass to outpace herbivory. *Nature Communications* 11: 6036. DOI: [10.1038/s41467-020-19870-y](https://doi.org/10.1038/s41467-020-19870-y)

Juvigny-Khenafou, N.P., **Piggott, J.J.**, Atkinson, D., Zhang, Y., Macaulay, S.J., Wu, N., Matthaei, C.D. (2020). Impacts of multiple anthropogenic stressors on stream macroinvertebrate community composition and functional diversity. *Ecology and Evolution*. DOI: [10.1002/ece3.6979](https://doi.org/10.1002/ece3.6979)

Macaulay, S.J., Hageman, K.J., **Piggott, J.J.**, Matthaei, C.D. (2020). Imidacloprid dominates the combined toxicities of neonicotinoid mixtures to stream mayfly nymphs. *Science of The Total Environment*. DOI: [10.1016/j.scitotenv.2020.143263](https://doi.org/10.1016/j.scitotenv.2020.143263)

**Ó Marcaigh, F., Kelly, D.J.**, Analuddin, K., Karya, A., **Lawless, N., Marples, N.M.** (2020). Cryptic sexual dimorphism reveals differing selection pressures on continental islands. *Biotropica*. DOI: [10.1111/btp.12852](https://doi.org/10.1111/btp.12852)

**O'Connell, D.P.**, Martin, T.E., **Kelly, D.J., Marples, N.M.**, Analuddin, K., Karya, A. (2021). Threats to an undescribed songbird species in Indonesia. *Oryx* 55. DOI: [10.1017/S0030605320001027](https://doi.org/10.1017/S0030605320001027)

**Ross, S.R.P.-J.**, Friedman, N.R., Yoshimura, M., Yoshida, T., **Donohue, I.**, Economo, E.P. (2021). Utility of acoustic indices for ecological monitoring in complex sonic environments. *Ecological Indicators* 121, 107114. DOI: [10.1016/j.ecolind.2020.107114](https://doi.org/10.1016/j.ecolind.2020.107114)

\*Zoology affiliations highlighted in bold.

## OTHER ACTIVITIES

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**Prof. Yvonne Buckley** has been elected as Vice-President of the British Ecological Society. The BES is the oldest ecological society in the world and has over 6,000 members from around the world (36% from beyond the UK). The BES also supports the Irish Ecological Association as a partner organisation.

**James Orr** was the student winner of the “Ecology in Action” category of the BES 2020 photography competition with his photograph of the ExStream mesocosm system taken during a field experiment in New Zealand.

**Maude Baudraz** was awarded the 2020 W. C. Campbell Postgraduate Teaching Inspiration Award in Zoology. This annual award was established in 2017 by Nobel laureate and TCD alumnus **Prof. William C. Campbell** as a kind contribution to the department to recognise the value of inspiring mentorship, to which Prof. Campbell attributes his lifelong fondness for parasitology.

**Sam Ross** and **Dr. Darren O'Connell** organised a Thematic Session at the British Ecological Society's online annual meeting in December. The session, *Soundscapes as a tool to monitor disturbance impacts in the Anthropocene*, brought together experts on acoustic monitoring of terrestrial, freshwater, and marine biodiversity, and included a keynote talk by Dr. Zuzana Burivalova (University of Wisconsin Madison).

**Dr. Ian Donohue** has become a member of the Scientific Committee of the European Environmental Agency (EEA), providing expertise on biodiversity and ecosystems. The EEA is an agency of the European Union, whose task is to provide sound, independent information on the environment. The EEA aims to support sustainable development by helping to achieve significant and measurable improvement in Europe's environment, through the provision of timely, targeted, relevant and reliable information to policymaking agents and the public.

**Rachel Hester** (Graduated 2019) won the Charles Donovan prize for best performance in the Immunology and Global Health Masters at Maynooth University.

**Shane Somers** (Graduated 2015) who is currently undertaking a PhD at University College Cork was awarded the Jane Grimson Medal of Excellence for being the top-ranked IRC postgraduate researcher in the STEM category.

**Maude Baudraz** presented an on-demand talk—Predicted environmental suitability affects vital rates in *Plantago lanceolata*—at the BES festival of Ecology 2020. She showed preliminary evidence that along a steep environmental gradient in the Alps, environmental suitability predicts the rates of survival, reproduction and growth in a plant species, but that demographic buffering (*i.e.* compensation patterns between those rates) make this signature invisible at the population growth level. Several other members of Zoology attended and presented at BES as well.

**Dr. Ian Donohue** has joined the editorial team at *Global Change Biology*.

**Prof. Yvonne Buckley** was asked to make a submission to the Joint Committee on Climate Action on the general scheme of the Climate Action and Low Carbon Development (Amendment) Bill 2020. She spoke about the importance of addressing climate and biodiversity action together through the use of nature-based solutions and how the proposed legislation can be changed to strengthen the consideration of biodiversity and support the National Biodiversity Action Plan. [Read more here.](#)

Zoology did well at the Irish Ecological Association meeting in January 2021, with several members (past and present) picking up awards. **Paula Tierney** won 3<sup>rd</sup> place for her poster, **Dr. Hannah White** was highly commended for her early career talk, **Dr. Andrew Mooney** was highly commended for his postgraduate talk, and **James Orr** won the postgraduate talk category. Additionally, **Dr. Kevin Healy** (now NUIG) and **Sam Ross** were each given an Early Career Achievement award.

Abstract submission is now open for SEFS 12 (Symposium for European Freshwater Sciences), which will run as a virtual conference from 25-30 July 2021. **Dr. Jay Piggott** is on the organising committee and will co-chair a session on multiple stressors. The deadline for abstract submission is 15 March 2021. More details about the conference, which is being organised by the Irish Freshwater Sciences Association, [are available here](#).

### Edited By Sam Ross (@SamRPJRoss)

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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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