

Newsletter of the Department of Zoology, Trinity College Dublin

NEW PEOPLE

Tallulah Davey
Research Assistant
O'Connor Group

Hello all, I'm Tallulah, and I've recently joined Zoology as a Research Assistant in the O'Connor lab where I will be working on the new *Beyond Biofuel* seaweed cultivation project! As a Zoology graduate from Trinity, I am passionate about intertidal ecology, biodiversity conservation and climate change mitigation. Past projects I have worked on include enhancing seawall biodiversity and oyster reef restoration in Sydney Harbour, and understanding the impact of warming on seaweed-grazer interactions in Ireland.

**Dr. Hannah White**
IRC Postdoctoral Fellow
Buckley Group

I am a GOI Irish Research Council Postdoctoral Fellow working on the contribution of commonness and rarity to patterns of biodiversity. For the past 4 years I have been doing a postdoc within the Ecological Modelling Group at University College Dublin.

Andrew McManus
PhD Student
Stuart Group (IT Tralee) & Holland Group

Andrew will undertake a PhD co-supervised by Dr. Peter Stuart (now Assistant Professor at IT Tralee) and Prof. Celia Holland as part of the Biodiversa-funded project "Managing biodiversity in forests and urban green spaces: Dilution and amplification effects of rodent microbiome and rodent-borne diseases." Andrew completed his undergraduate degree in Zoology and previously worked on ornithological conservation projects with BirdWatch Ireland.



Dr. Javier Puy**Research Fellow
Buckley Group**

I'm a new postdoc in the Buckley Lab working on a PlantPopNet project that seeks to 1) understand the variation in reproductive strategies of *Plantago lanceolata* across global scales and 2) determine how demography affects, and is affected by, clonality. I am originally from the north of Spain/Basque Country, but I was trained as a plant functional ecologist in Czech Republic, where I did my PhD. I was there when I began to get curious about the causes and consequences of the intraspecific phenotypic variability in ecology and evolution, with special focus on transgenerational epigenetic inheritance.

**Dr. Mathias Kuemmerlen
Research Fellow
Piggott Group**

Mathias recently joined the Piggott Lab as a Research Fellow to investigate how remote sensing products can be used to understand the threats to Irish Freshwater Pearl Mussel populations. Mathias earned his Ph.D. in Biology at the Goethe University in Frankfurt, Germany. As a postdoc he spent several years at the Senckenberg Insitute in Germany and at Eawag in Switzerland.

Dr. Jason Keegan
IRC Postdoctoral Fellow
Holland Group

Jason Keegan will be returning to the department as an IRC Postdoctoral Fellow working on a project entitled "Teaching an old dog new tricks: The application of novel geospatial modelling techniques to investigate the interactions between two major reservoirs of *Toxocara* spp. infection." Jason completed his undergraduate and M.Sc degrees in the Zoology Department. He then completed his PhD in Teagasc in conjunction with the Department of Agriculture and UCD working on the molecular basis of anthelmintic resistance in Irish sheep nematodes. He has most recently been working at Alltech, as a regulatory research specialist, investigating the effects of various animal feed additives on multiple farm animal species.



ZOOLOGY IN THE NEWS

Combatting coronavirus

Three former members of the Parasitology group are involved in the fight against Covid-19. Most recently, **Gwen Deslyper**, having submitted her PhD thesis, has started a job as a Surveillance Scientist in the Health Protection Surveillance Centre. **Rachel Byrne** (MSc, 2019) is working on Covid-19 diagnostics at the Liverpool School of Tropical Medicine. **Dr. Chris Dold** (PhD, 2010) is a senior researcher on the development of a vaccine against COVID-19 as part of the Oxford vaccine group and was [recently profiled in the Guardian newspaper](#).

Sensing Ecologies

Fionn Ó Marcaigh and **Sam Ross** lent their voices to *Sensing Ecologies*, an app offering an immersive geo-located audio tour of Bull Island. The app is free and available from the iOS app store or the [Google Play Store](#). Fionn spoke about the app to RTÉ's Drivetime programme, available [on the RTÉ Player at this link](#) (the segment begins at 1:19:00).

Ecological Thresholds

A recent publication in *Nature Ecology & Evolution* co-authored by **Dr. Ian Donohue** has been making quite a stir in the national and international news. The main finding of the paper, that thresholds for ecological responses to global change do not emerge from empirical data, has important implications for policy and management, and was covered in both [The Irish Times](#) and [Irish Independent](#).

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. “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.”

NEWS FROM THE ZOOLOGY MUSEUM

Unfortunately, all outreach and related activities have been suspended due to COVID-19. The museum is effectively closed to visitors and students until further notice. However, the temporary closure has enabled **Dr. Martyn Linnie** to undertake minor alterations to the layout of the free-standing exhibits and to continue vital conservation work on the insect collections.

WHERE ARE THEY NOW?

Prof. William (Bill) Campbell **Undergraduate Zoology (Graduated 1952)** **Nobel prize winning scientist**

Prof. Campbell conducted undergraduate studies in Zoology before going on to develop a cure for river blindness—caused by the filarial nematode *Onchocerca volvulus*—which ultimately earned him the 2015 Nobel Prize in Physiology or Medicine. He talks fondly of his time at Trinity, and particularly of mentorship by **James Desmond Smyth**, himself a renowned parasitologist.



Juliette Picard **Research Intern (2017-2018)** **Natural Regional Park**

Juliette was a visiting intern with **Dr. Ian Donohue**, working closely with **Dr. Maureen Williams** in 2017-2018. Since returning to France and finishing her degree, she has moved to Normandy, where she works in a Natural Regional Park. She’s enjoying the fresh air and green views!

RESEARCH UPDATES

Beyond biofuel

Just before lockdown, **Dr. Nessa O'Connor** was invited to Áras an Uachtaráin to receive an SFI President of Ireland Future Research Leaders Award. This prestigious award will support a new 5-year project in Zoology, *Beyond biofuel: Advanced seaweed cultivation for marine biodiscovery and climate change mitigation* (€1.3M)

**Adapt taxonomy to conservation goals**

Dr. Darren O'Connell, Dr. Dave Kelly and Prof.

Nicola Marples recently published an opinion piece in *Science*. Prof. Marples says that the piece is a warning that “we shouldn't endanger rare species by insisting on a type specimen before they can be officially recognised and therefore given any protection. Our argument is based around the new species of white eye we found, as it's fast disappearing due to the pet trade.”

Tracking sharks with ROVs

Haley Dalton won a remote underwater vehicle (ROV) from the Conservation X Labs ROVs for Good program. “I'll use it for my PhD chapter researching sixgill shark biology and ecology in Irish waters. It will allow me to follow sharks after capture in fisheries (from a safe distance) to see how they behave after a stressful event and to perform surveys from the boat to see whether the West coast of Ireland is a hotspot for this species. You control the ROV like you would in a driving game (it literally comes with a games controller!) and it records in super HD quality.”

ESDecide

As part of the EPA-funded ESDecide project (@ESDecideProj), **Dr. Marcin Penk** and multidisciplinary collaborators held an expert workshop to build a Bayesian network model which will form the heart of an on-line decision support tool for linking land management with ecosystem services derived from rivers.

Impact resistance of limpet shells

Well done to **Niamh Harford** (Zoology, 2019) who recently published the results of her Moderatorship project with co-authors **Dr. Nessa O'Connor** and Prof. David Taylor (Mechanical Engineering).

Back on the open ocean

“The **Payne Lab** finally got back out in the field this week, after a prolonged COVID hiatus! We collected accelerometer and camera data from a 2.07m Atlantic Bluefin tuna off the coast of Co. Donegal as part of **Haley Dolton**’s PhD project. We’re all very happy to be back collecting data and it’s a great start to our tuna season.” *Lucy Harding.*



AQUACOSM-plus

The H2020 project AQUACOSM-plus, on which **Dr. Jay Piggott** is the Irish funded investigator, had its kick-off meeting. This project is a “Network of Leading Ecosystem Scale Experimental AQUATIC MesoCOSM Facilities Connecting Rivers, Lakes, Estuaries and Oceans in Europe and beyond”

Áras an Uachtaráin Biodiversity Audit

The Áras an Uachtaráin biodiversity audit is nearly complete. This audit, led by Prof. Jane Stout (Botany) and managed by **Dr. Aoibheann Gaughran**, represents a considerable effort by members of Zoology and beyond, including **Prof. John Rochford**, **Prof. Nicola Marples**, **Dr. Dave Kelly**, **Dr. Ruth Kelly**, **Collie Ennis**, **Fionn Ó Marcaigh**, and **Sam Preston** from Zoology. The audit aims to catalogue the biodiversity of the Áras, and present findings and management recommendations to President Higgins. *Find out more in the Autumn 2020 XtraBytes.*

ON THE [ECOEO@TCD BLOG](#)

[Boating in Ankobohobo, or The Importance of Bird Areas](#)

Fionn Ó Marcaigh

Fionn published a paper with Malagasy and British coauthors, presenting the first detailed list of bird species inhabiting a mangrove in Madagascar. Ankobohobo Wetland is home to many endemic Malagasy species, some of them in imminent danger of extinction, but only a handful of these had previously been recorded in the literature.

[The remarkable bird life of the Wakatobi Islands, SE Sulawesi: hidden endemism and threatened populations](#)

Dr. Darren O'Connell

In their recent paper in the *Raffles Bulletin of Zoology*, Darren and colleagues “summarise 20 years of remarkable work by **Prof. Nicola Marples**, **Dr. Dave Kelly** and others, recording 100 bird species for the islands, highlight recently described species, and discuss the threats facing the resident Critically Endangered species.”

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

LATEST PUBLICATIONS

Coscieme, L. et al. [inc. **Donohue, I.**] (2020) Going beyond Gross Domestic Product as an indicator to bring coherence to the Sustainable Development Goals. *Journal of Cleaner Production* 248: 119232. DOI: <https://doi.org/10.1016/j.jclepro.2019.119232>

Deslyper, G., Sowemimo, O.A., Beresford, J., Holland C.V. (2020). *Ascaris lumbricoides* and *Ascaris suum* vary in their larval burden in a mouse model. *Journal of Helminthology* 94, e128. DOI: [10.1017/S0022149X20000127](https://doi.org/10.1017/S0022149X20000127)

Else, K.J. et al. [inc. **Holland, C.V.**] (2020). Whipworm and roundworm infections. *Nature Reviews Disease Primers* 6, 44. DOI: [10.1038/s41572-020-0171-3](https://doi.org/10.1038/s41572-020-0171-3)

Harford, N., O'Connor N., Taylor, D. (2020). Impact resistance of limpet shells: a study of local adaptations *Applied Physics A* 126, 757. DOI: [10.1007/s00339-020-03941-4](https://doi.org/10.1007/s00339-020-03941-4)

Hillebrand, H., **Donohue, I., et al.** (2020) Thresholds for ecological responses to global change do not emerge from empirical data. *Nature Ecology & Evolution*. DOI: <https://doi.org/10.1038/s41559-020-1256-9>

Juvigny-Khenafou, N.P. et al. [inc. **Piggott, J.J.**] (2020). Anthropogenic stressors affect fungal more than bacterial communities in decaying leaf litter: A stream mesocosm experiment. *Science of The Total Environment* 716, 135053. DOI: [10.1016/j.scitotenv.2019.135053](https://doi.org/10.1016/j.scitotenv.2019.135053)

Juvigny-Khenafou, N.P., **Piggott, J.J.**, Atkinson, D., Zhang, Y., Wu, N., Matthaei, C.D. (2020). Fine sediment and flow velocity impact bacterial community and functional profile more than nutrient enrichment. *Ecological Applications*, e2212. DOI: [10.1002/eap.2212](https://doi.org/10.1002/eap.2212)

Kelly, D.J., Gaughran, A., Mullen, E., MacWhite, T., Maher, P., Good, M., Marples, N.M. (2020). Extra Territorial Excursions by European badgers are not limited by age, sex or season. *Scientific reports* 10, 1-12. DOI: [10.1038/s41598-020-66809-w](https://doi.org/10.1038/s41598-020-66809-w)

Macaulay, S.J., Hageman, K.J., **Piggott, J.J.**, Matthaei, C.D. (2020). Time-cumulative effects of neonicotinoid exposure, heatwaves and food limitation on stream mayfly nymphs: A multiple-stressor experiment. *Science of The Total Environment*, 141941. DOI: [10.1016/j.scitotenv.2020.141941](https://doi.org/10.1016/j.scitotenv.2020.141941)

Ó Marcaigh, F. *et al.* (2020). The avifauna of Ankobohobo Wetland, a neglected Important Bird Area in northwestern Madagascar. *Scopus: Journal of East African Ornithology* **40**, 18-28. [Open Access Link](#).

O'Connell, D.P., Kelly, D.J., Analuddin, K., Karya, A., **Marples, N.M.,** Martin, T.E. (2020). Adapt taxonomy to conservation goals. *Science* **369**, 1172-1172. DOI: [10.1126/science.abd7717](https://doi.org/10.1126/science.abd7717)

O'Connell, D.P. *et al.* [inc. **Kelly, D.J., Kelly, S.B., Marples, N.M.**]. (2020). An assessment of the avifauna of the Wakatobi Islands, South-east Sulawesi, Indonesia: species recorded and taxonomic considerations. *Raffles Bulletin of Zoology* **68**, 574-587. DOI: [10.26107/RBZ-2020-0073](https://doi.org/10.26107/RBZ-2020-0073)

Orr, J.A. *et al.* [inc. **Penk, M.R., Piggott, J.J.**]. (2020). Towards a unified study of multiple stressors: divisions and common goals across research disciplines. *Proceedings of the Royal Society B* **287**, 20200421. DOI: [10.1098/rspb.2020.0421](https://doi.org/10.1098/rspb.2020.0421)

Shoemaker, L.G *et al.* [inc. **Yang, Q., Donohue, I.**] (2020) Integrating the underlying structure of stochasticity into community ecology. *Ecology* **101**: e02922. DOI: <https://doi.org/10.1002/ecy.2922>

Stuart, P., Paredis, L., Henttonen, H., Lawton, C., Ochoa Torres, C.A., **Holland, C.V.** (2020). The hidden faces of a biological invasion: parasite dynamics of invaders and natives. *International Journal of Parasitology* **50**, 111-123. DOI: [10.1016/j.ijpara.2019.11.003](https://doi.org/10.1016/j.ijpara.2019.11.003)

Tierney, P.A., Caffrey, J.M., Vogel, S., Matthews, S., Costantini, E., **Holland, C.V.** (2020). Invasive freshwater fish (*Leuciscus leuciscus*) acts as a sink for a parasite of native brown trout *Salmo trutta*. *Biological Invasions* **22**, 2235-2250. DOI: [10.1007/s10530-020-02253-1](https://doi.org/10.1007/s10530-020-02253-1)

Tierney, P.A., Caffrey, J.M., Matthews, S., Costantini, E., **Holland, C.V.** (2020). Evidence for enemy release in invasive common dace *Leuciscus leuciscus* in Ireland: A helminth community survey and systematic review. *Journal of Helminthology* **94**, E191. DOI: [10.1017/S0022149X20000759](https://doi.org/10.1017/S0022149X20000759)

White, L., **O'Connor, N.E., Yang, Q.,** Emmerson, M.C. & **Donohue, I.** (2020) Individual species provide multifaceted contributions to the stability of ecosystems. *Nature Ecology & Evolution*. DOI: <https://doi.org/10.1038/s41559-020-01315-w>

Weigand, A.M., Michler-Kozma, D., **Kuemmerlen, M.,** Jourdan, J. (2020). Substantial differences in genetic diversity and spatial structuring among (cryptic) amphipod species in a mountainous river basin. *Freshwater Biology* **65**, 1641-1656. DOI: [10.1111/fwb.13529](https://doi.org/10.1111/fwb.13529)

Williams, M., Holland, C.V., Donohue, I. (2020). Warming can alter host behavior in a similar manner to infection with behavior-manipulating parasites. *Oecologia*. DOI: [10.1007/s00442-020-04745-2](https://doi.org/10.1007/s00442-020-04745-2)

*Zoology affiliations highlighted in bold.

OTHER ACTIVITIES

Save Our Seas Foundation's "the Whole Tooth" is a new series where ocean experts answer children's marine and sharky questions. PhD student **Jenny Bortoluzzi** was featured in [episode 2](#) answering the question "[How do sharks communicate?](#)"

Prof. Yvonne Buckley has been appointed as a Senior Editor for *Journal of Ecology*, which is published by the British Ecological Society. *Journal of Ecology* is one of the leading ecology journals internationally and publishes papers on all aspects of the ecology of plants. Congratulations, Yvonne!

"For our super exciting [Food Smart Dublin](#) project, co-led by **Dr. Nessa O'Connor**, we're thrilled to announce 5 upcoming interactive workshops with ECO-UNESCO on their sustainable seafood consumption programme. These workshops are for young environmental activists or students (16-18yrs) who are interested to learn and engage in sustainable and local seafood consumption."
Dr. Cordula Scherer.



BE FOODSMART! CALENDAR

24th September - 24th October 2020

THURSDAY 24TH SEPTEMBER
Drop-in between 4:00pm and 6:30pm: Introductory Meeting - Sutton Beach (Dublin Bay side near Marine Hotel)
FRIDAY 25TH SEPTEMBER
4:30pm - 6:30pm: Sustainable Food - Online
FRIDAY 2ND OCTOBER
4:30pm - 6:30pm: Irish Seafood - Online
FRIDAY 9TH OCTOBER
4:30pm - 6:30pm: Seasonality - Online
SATURDAY 17TH OCT
3:00pm - 5:00pm: Foraging Workshop - Sutton Beach (Dublin Bay side near Marine Hotel)
SATURDAY 24TH OCTOBER
3:00pm - 5:00pm: Cooking Workshop (Online, including cooking kit)



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 [rosssa\[at\]tcd.ie](mailto:rosssa[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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