

The newsletter from the Botany Department at Trinity College Dublin

New People

Welcome to two new PhD students **Ruchita Ingle** and **Marine Valmier**, both supervised by **Matt Saunders**. Ruchita has been appointed to a Provosts PhD Scholarship Award and will work on the carbon and greenhouse gas dynamics of peatland ecosystems; while Marine will join the DAFM funded Agri-SOC project to evaluate the impact of land use and management on soil organic carbon stocks in Irish agricultural systems.

Publications

Global Change Biology: **John Devaney** co-authored a paper in *Global Change Biology* titled “Differential effects of biological invasions on coastal blue carbon: A global review and meta-analysis”.



Images from the paper - Examples of introduced habitat engineers in coastal “blue carbon” habitats. Red mangrove *Rhizophora mangle* in Hawaii (A), Cordgrass *Spartina alterniflora* in China (B), and the seagrass *Halophila stipulacea* in the Mediterranean (C).

The Integrated Carbon Observation System: **Matt Saunders**, **Ana Lopez Ballesteros** and **Mike Jones** have published a series of papers in a special issue of *International Agrophysics*. These papers titled “Towards long-term standardised carbon and greenhouse gas observations for monitoring Europe’s terrestrial ecosystems: a review”; “Importance of reporting ancillary site characteristics, and management and disturbance information at ICOS stations”; and “Soil-meteorological measurements at ICOS monitoring stations in terrestrial ecosystems”, involved a number of international co-authors and focused on the measurements made at the observational stations of ICOS (Integrated Carbon Observation System) Ecosystem Thematic Centre.

Cogent Food and Agriculture: **Brian Murphy**, **Trevor Hodkinson**, **Erika Soldi** and **Marta Jadwiszczak**, have just had a new research article published in the Taylor & Francis open access journal *Cogent Food & Agriculture*. The article, entitled ‘[Endophytes from the crop wild relative *Hordeum secalinum* L. improve agronomic traits in unstressed and salt stressed barley](#)’, reports on an experiment that describes how a group of habitat-adapted plant symbionts (endophytes) increase salt stress resistance in barley, and which may lead to the development of a successful inoculant for barley crops growing on saline soils.

Projects and Funding

ReNature (promoting Research Excellence in NAture-based soluTions for innovation, sUustainable economic GRowth and human wELL-being in Malta) is a Horizon 2020 project awarded under the Twinning and Widening part of Horizon 2020. This is where less well known academic institutions are awarded funding to build a small consortium with more established universities in order to be mentored and have their capacity for participation in Horizon 2020 increased. ReNature is being led by the Widening partner, the Institute of Applied Sciences, Malta College of Arts, Science and Technology (MCAST), which is twinned with the TCD School of Natural Sciences (PI Dr. [Marcus Collier](#)), the University of Trento and the University of East Anglia. The project aims to establish and implement a strategy and research cluster to step-up and stimulate scientific excellence and innovation capacity in the area of nature-based solutions for sustainable development. This project will be aligned to the larger Horizon 2020 project [Connecting Nature](#), led by Marcus. The project activities include various types of training and networking events aimed at building up the research capacity and at promoting research excellence in the field of nature-based solutions. This collaboration is expected to offer the widening institution MCAST an opportunity to increase the research capacity within this sector, link up with existing initiatives and projects led by, or receiving input from, the research-intensive institutions, develop a national research cluster with strong international collaborations, and provide practical solutions based on cutting-edge science and developed through international collaboration. Click on the logo to learn more about ReNature.



[Paul Dowding](#) has been awarded a second grant from the EPA, [to run alongside one awarded last year for POMMEL (Pollen Monitoring and ModELLing) to reformulate the grass pollen forecasting model and to develop real-time pollen counting devices to support the new model]. The new project is similar in its aims to POMMEL but will concentrate on fungal spores, which are an important factor in the causation of asthma. While POMMEL supports one post-doctoral researcher ([Dr Jose Manzano](#)) and one postgraduate for two years (2018 and 2019), the new grant will support one postdoc and two postgrads for three years (2019-2021). All these personnel will be based at the DIT where [Dr David O'Connor](#) (Co-Principal Investigator with Paul) works as an atmospheric chemist. Most of the equipment will be shared between the projects. One of the three current sampling points is on Paul's farm in Clonegal, where it gives data from a rural location. The other two currently are in Dublin and Cork, and will be augmented by a fourth point in Sligo from 2019 onward. In what was a record summer for grass pollen concentrations in Dublin, the peak daily average in Clonegal exceeded 5000 grains/m³, 100 times the concentration thought to trigger hay-fever symptoms in most people allergic to grass pollen, and 25 times the daily average in Dublin on the same day.

Events

Recently, [John Parnell](#) was interviewed twice for different University publications. Firstly, a general profile covering his research and administrative responsibilities was posted in the latest edition of the student newspaper 'The University Times' and will shortly appear online. The [second interview](#), by the alumni office, was mostly concerned with the College campus, but mentions the herbarium and the necessity for field study by students.



[Jane Stout](#) gave a webinar to the Irish Beekeepers Association on Bee Health Research.



Trevor Hodkinson gave a seminar at IBERS (Institute of Biological, Environmental & Rural Sciences) Aberystwyth University Wales on 'Old and New Uses of Plant Genetic Resources' and visited the grass breeding group including ex TCD Botany **John Clifton Brown** who heads up the *Miscanthus* breeding programme for biomass/bioenergy (photographed here above a field trial of *Miscanthus*, Nov 20th).



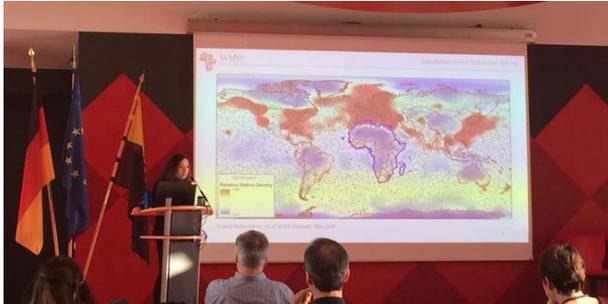
As part of Science Week 2018, **John Devaney** visited Holy Rosary Primary School in Tallaght where he spoke to 4th, 5th and 6th class pupils about the science of climate change. Pictured here with 3rd Class Teacher Mr Garde.



Meetings and Conferences

Jane Stout and **Laura Russo** attended the Joint Entomological Society of America and Canada meeting in Vancouver. Laura presented a talk on "Impacts of fertiliser and herbicide runoff on plant-pollinator interactions" and co-authored a presentation on "Bee diversity on electric transmission rights-of-way in Pennsylvania: A continuing study of how vegetation management strategies influence wild pollinators". Jane gave a talk on "Pesticide impacts on hoverflies".

Matt Saunders gave an invited seminar to the University College Cork, School of Biological, Earth and Environmental Sciences which explored the ecophysiological insights into the carbon and greenhouse gases dynamics of terrestrial ecosystems.



Ana López Ballesteros represented the EU H2020 SEACRIFOG project in the "Research Infrastructures and the Paris Agreement" conference, held in Brussels on 20-21 November. This conference was organized by the EU H2020 project [COOP+](#), a project that promotes a cross-domain collaboration among global and European Research Infrastructures (RIs) in order to face the most important environmental global challenges. The conference was focused on how RIs can effectively support the political decisions towards the fulfilment of the Paris Agreement. Key policy-relevant challenges posed to current RIs in this regard, are: 1) the quantification of anthropogenic GHG (greenhouse gas) emissions using atmospheric observations and models, 2) the provision of robust observations of changes in carbon storage and GHG emissions over the oceans, and from natural and cultivated systems, 3) and the generation of science-based evidence on the resilience of marine and terrestrial ecosystems to climate change and adaptation strategies. However, to address these global challenges, international collaboration among RIs worldwide as well as efficient data sharing and cooperation mechanisms are crucial. The conference gathered the experience of relevant already-implemented international RIs, such as [ACTRIS](#), [ARGO](#), [ICOS](#), [Copernicus](#), [TERN](#), the [Global Atmosphere Watch](#) and [IG3IS](#), which both belongs to [WMO](#). Additionally, current initiatives aimed at filling the large observational gaps in the African continent were also represented by the [SAEON/EFTEON initiative](#) and the [SEACRIFOG project](#), where **Matthew Saunders** and **Ana López Ballesteros** are working.

PHYTOBYTES needs your input! Whether you are student or staff, please send any news you have, big or small, to Sarah (gabels@tcd.ie) with the subject heading "Phytobytes". Let's share the latest news and always be aware of what is happening at Botany!