

The newsletter from the Botany Department at Trinity College Dublin

New People

Welcome (back) to **Andrew Neill** who has just started a PhD with **Jane Stout**, as part of the SFI-funded BEACON Bioeconomy research centre. Andrew is a Botany graduate from 2017, who has since completed the Masters in Development Practice (TCD and UCD). He will be taking a natural capital approach to examining the sustainability of bioeconomic industries, co-supervised by **Cathal O'Donoghue** at NUIG.

Publications

Phytotaxa: **Dongwei Zhao**, a recent PhD graduate of the Botany Department and now a lecturer in China, has along with **John Parnell** and **Trevor Hodkinson** published the third in their series of papers dealing with the nomenclature of *Camellia* – the Tea genus.

Zhao, D., Parnell, J.A.N. & Hodkinson, T.R. (2019). Typification of names in *Camellia* (Theaceae), III. *Phytotaxa*, 415: 298-300.

Taxon: The Cyperaceae contains >100 genera and 5,500 species. A quarter of this family were thought to be groupable in a single tribe – Tribe Scirpeae. But a brand-new analysis just published in the journal *Taxon* (68: 218-245) has shown that the Scirpeae are paraphyletic. This means that three separate tribes need to be recognised: one of them is Tribe Khaosokieae. The authors of the recent paper say their findings mean that the Khaosokieae is a tribe that has experienced ca. 45 million years of unique evolutionary history. This is exciting news for TCD Botany as Tribe Khaosokieae contains a single genus with a single species - *Khaosokia caricoides* D.A.Simpson, Chayam. & J. Parn.. This very rare endemic species was discovered on one of TCD's expeditions to Thailand undertaken for the Flora of Thailand project. The TCD associated personnel on the expedition were **John Parnell**, **David Simpson** (a former postdoc in TCD, then Keeper of the Herbarium in Kew), **Somran Suddee** (a former PhD student in TCD and now employee of the Royal Forest Department in Thailand) and **Bart de Wilde** (also a former PhD student in TCD). **Mike Jones** was also involved in the final publication describing this species as he helped to determine that *K. caricoides* was a C3 species.

Plant Physiology: A paper by **Charilaos Yiotis** and **Jennifer C. McElwain** was just published in *Plant Physiology*. The title of the paper is "[A novel hypothesis for the role of photosynthetic physiology in shaping macroevolutionary patterns](#)." In this paper, they use physiological measurements on extant plants, 3 different modelling approaches and 2 records of paleoatmospheric composition to perform deep-time simulations of photosynthetic physiology in angiosperms, gymnosperms and ferns. Their work demonstrates that past fluctuations in atmospheric O₂ and CO₂ may have resulted in significant shifts in the relative competitiveness of the three evolutionary groups. Importantly, it provides a mechanistic basis for the broad temporal correlation between atmospheric change and shifts in plant evolutionary group-level richness observed in the fossil record. Projecting into the future, this study suggests that gymnosperm species are likely to benefit from rising CO₂, which may affect the composition of future plant communities in their favour.

Events and Activities



The Critter Shed Podcast: **Stephanie Maher** was on the podcast "The Critter Shed" to talk about bees, in an episode titled [The buzz about bees](#).



Biodiversity Festival: At the inaugural Phoenix Park Biodiversity Festival on 14th September, **Irene Bottero**, **Elena Zioga** and **Simon Hodge** had the opportunity to meet with **President Michael D. Higgins** and talk about their work on bees and bee decline, and **Jane Stout** was one of the invited speakers, talking about bee importance and decline. In his speech, the President praised the work of Irish scientists in understanding and communicating about biodiversity loss and its importance to society and economies, highlighted the importance and usefulness of the National Biodiversity Conference at Dublin Castle, and commended the work of the All-Ireland Pollinator Plan in bringing sectors together for conservation.



Future Mangroves Expedition: This August, the TCD “Future Mangroves” team travelled to Senegal to continue multidisciplinary research on the impacts of climate change on mangrove forests in climate vulnerable regions. **John Devaney** (Post Doc in the Botany Department), **Emma Bertipaglia**, **Jaqueline Mullen**, and **William Penn** (MSc Development Practice, School of Natural Sciences) travelled to the Saloum Delta, where they were hosted by the community of Bettenty. In collaboration with the Senegalese Institute for Agricultural Research, the team assessed degradation and restoration of mangrove forests and impacts on livelihoods. “Future Mangroves” aims to inform future sustainable development in the region.



iCRAGorama podcast: [Charilaos Yiotis](#) and [Weimu Xu](#) recorded a podcast about their project and about how plants can save the world for the iCRAGorama podcast series (listen on [Anchor](#) or [SoundCloud](#)).



Plants and the Irish Environment Field Trip: Thirty-five intrepid Botany and Environmental Science Junior Sophister students set off on the autumn field module “Plants and the Irish Environment” on Monday 9th September. First stop was the Trinity Botanic Gardens where [John Parnell](#) explained the intricacies and delights of identifying plants in the field. The following day, with picnics packed, the class headed off to Bull Island where [Mike Williams](#), assisted by [Jane Stout](#), [Trevor Hodkinson](#) and [Matt Saunders](#), led the class in recording vegetation and environmental gradients across the dune system. The next morning the class took a coach up to the Wicklow Mountains to explore Liffey Head Bog with [Fraser Mitchell](#), [Jenny McElwain](#), [Matt Saunders](#) and [Trevor Hodkinson](#). The weather behaved at this often inclement upland site which facilitated the gathering of data from numerous quadrats across the bog. We then proceeded down to the Glendalough hostel for the night. An excellent meal was prepared (not without incident) and later some



enthusiastic students took an evening “walk” to sample some local culture. Next day we walked from the hostel to the Upper Lake to meet the Wicklow Mountains National Park Conservation Ranger, Ann Fitzpatrick who outlined the challenges and triumphs involved in managing the park. The rest of the day was spent sampling vegetation and an array of environmental parameters in a range of different woodland types. We returned that evening to Dublin and spent the final day in the Botany teaching lab working on the data and completing the write up. No rain, no snow, a little bit of blood – overall an excellent and successful trip. Now it’s time to start planning for Gran Canaria!



Meetings and Conferences



Sarah Gabel attended the 10th International Symposium on Syrphidae in Lesbos, Greece at the University of the Aegean. She gave a presentation titled “The interactions of aphidophagous Syrphids in Irish cereal crop landscapes”.



EcoEvo Blog Posts

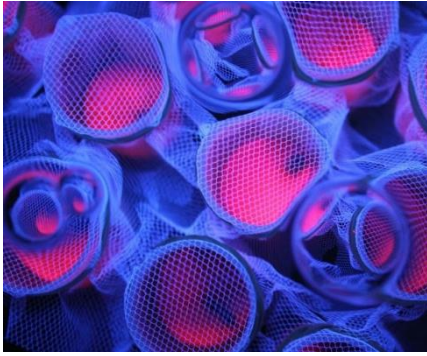
Want to learn more? Check out the [EcoEvo Blog](#), where Trinity's Botany and Zoology departments discuss their work and reflections in research. The latest posts include ...



[Invasive clams like it hot](#)
by Maureen Williams



[Surveying birds on an unexplored tropical island](#)
by Darren O'Connell



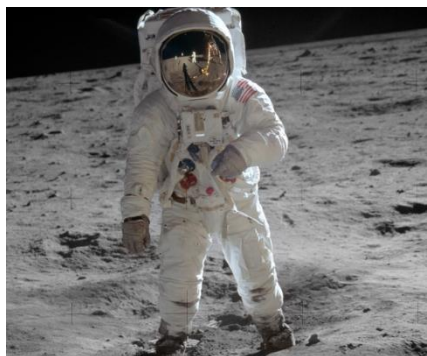
[Can you dig it? Parasites influence the rates of bioturbation in lakes and rivers](#)

by Maureen Williams



[A Happy Réunion at the Island Biology Conference 2019](#)

by Fionn Ó Marcaigh



[Moon Landing Anniversary – Don't look to the stars when the ground is burning](#)

by Sam Ross

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!