PHYTOBYTES

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The Trinity College Dublin Botany Department Newsletter

Accomplishments

Botany welcomes **Alison O'Reilly**, a new **Postdoc** who will be working in **Jane Stout**'s group on the **PROTECTS project.** Alison graduated at the Botany Dpt. of Trinity College Dublin in 2017 and she has recently submitted her PhD thesis with **Dara Stanley**, her supervisor at University College Dublin in the **Insect Ecology Lab,** where Alison has investigated the impacts of pesticides on the behaviour of bees and pollination services. A warm welcome also to two new academic staff members: **Dr Peter Moonlight** (right), **Assistant Professor** in Botany and **Dr Richard Nair** (left), **Teaching Fellow** in Botany. Peter will also take on the role of **Assistant Curator of the Herbarium** and Richard will be part of the **ERC Terraform** team investigating plant traits' evolution and their impact on earth system processes.

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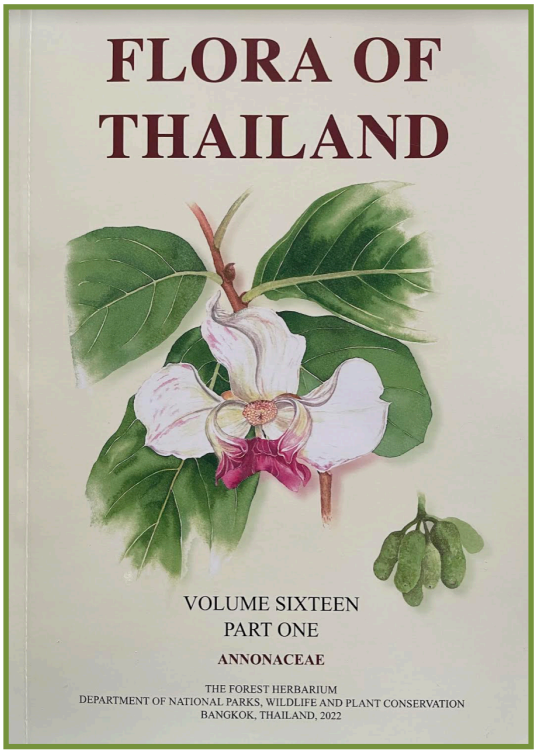
Phytobooks

Another part of the **Flora of Thailand**, of which **John Parnell** is an Editor, has just been published. This volume covers the taxonomically very difficult family **Annonaceae** and represents the **combined efforts of 34 authors** over very many years. One of these authors is **Conor Meade**, who undertook his Ph.D. in the Botany Department in 2001 under John Parnell's supervision, and is now based in Maynooth University.

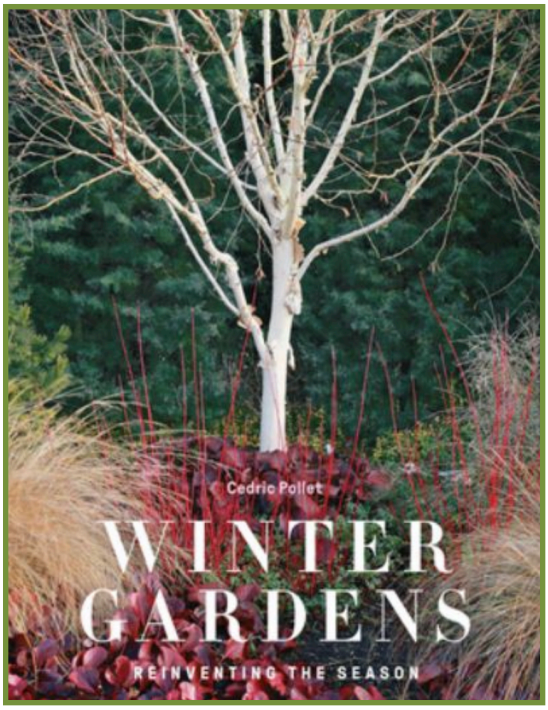
The Annonaceae is a large family with **2,500 species** of ecological and economic importance with a number of species of **canopy tree** (e.g. Cyathocalyx sp. in Thailand are about 30m tall), some **delicious fruit crops** (e.g. Annona squamosa and its hybrids - Custard Apple) and some of **economic importance** (e.g. Cananga odorata – (AKA "Queen of Perfumes") is the source of ylang-ylang oil which is the base for nearly all high quality perfumes). **Thirty-eight of the 42 genera native to Asia occur in Thailand and there are ca. 300 species.**



Custard apple, or cherimoya. Have you ever tried it?

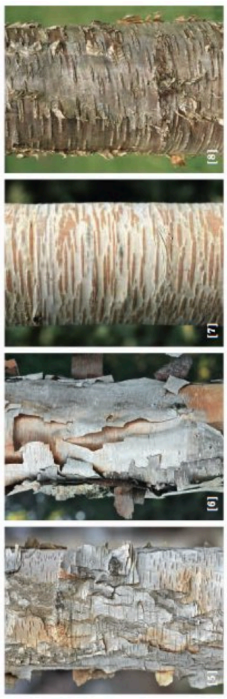
Phytobooks

Winter Gardens: Reinventing the Season



From the author of the bestselling '*Bark: An Intimate Look at the World's Trees',* this book from Cedric Pollet is another unique and unmissable gallery of natural landscapes. *Winter Gardens* is a reimagination of an entire season and presents 20 of the most creative and inspiring gardens across France and the UK.

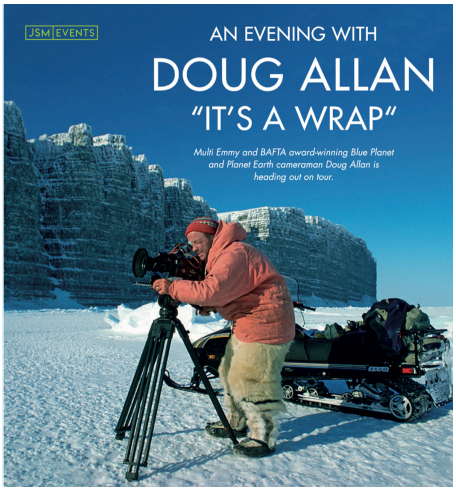
You can have a glance through this book in our Library from the 7th-11st of November.



Upcoming events

An evening with Doug Allan - *'It's a Wrap'*

We want to recommend you to join the multi-award winning wildlife cameraman **Doug Allan** for an evening at **Axis Ballymun Theatre**, Dublin, on the **2nd of November** (book your tickets here). This new presentation traces Doug's personal journey as he discusses how he's seen pollution and climate change affecting the natural world. **Copies of Doug's book Freeze Frame** will be on sale, as well as his **colour prints** of polar bears, penguins and seals. Trailer below!



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PhytoArt

"Microphones dropped into ocean off Greenland to record melting icebergs"

The Guardian, 19/10/22 - click on the title to read the full article

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Our artist in residence **Siobhán Mcdonald** plans to work with a composer to incorporate the recordings, which are to be collected in **2024**, into an **acoustic installation that will explore humanity's impact on the ocean**. She will also do **paintings**, **sculptures and other works** based on the trip. The hydrophones will record sounds every hour for two years before being collected, harvested for data and the recordings turned into an acoustic composition. Her project received support from the EU Commission's **JRC SciArt**, the **Arts Council of Ireland**, **Trinity College Dublin**, **Monaghan county council**, **Creative Ireland** and the non-profits **GLUON** and the **Ocean Memory Project**.

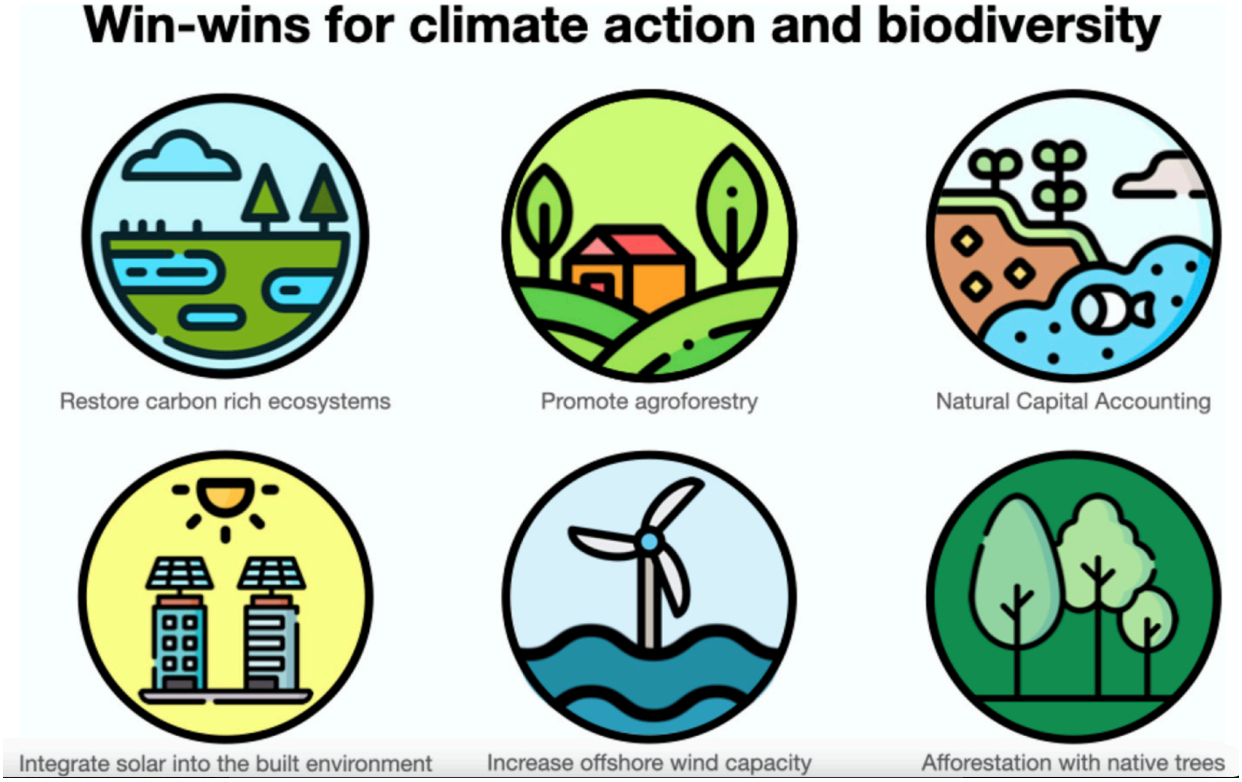
An iceberg off eastern Greenland. Photograph: Felipe Dana/AP

Publications

Click on the title to read the full article

Gorman C, Torsney A, Gaughran A, McKeon C, **Farrell C**, **White C**, Donohue I, **Stout JC**, Buckley YM (2023) ***Reconciling climate action with the need for biodiversity protection, restoration and rehabilitation***. Science of The Total Environment. 857, Part 1, 20 January 2023, 159316

This work was a group effort of several TCD researchers across **Botany** and **Zoology**. It originally arose from conversations in the **All-Island Climate and Biodiversity Research Network (AICBRN)** and was commissioned by **EPA Ireland** as input into **Climate Change Advisory Council carbon budget deliberations**. The take home message is that we can, and must, take synergistic action against both climate change and biodiversity loss.



Publications

Click on the title to read the full article

Vázquez-García, J. Antonio, **Kelly, Daniel L.**, Mejía-Valdivieso, Darío A., Morales, Wilson, Dahua-Machoa, Alex, Vega-Rodríguez, Hermes, Peña, Alondra Salomé Ortega, Padilla-Lepe, Jesús, Muñiz-Castro, Miguel Á. (2022):
Magnolia (Magnoliaceae) in Honduras: a synopsis with six new taxa.
Phytotaxa 570 (2): 109-149.

This work is a taxonomic synopsis for the **ten species of Magnoliaceae** from **Honduras** with a key and distribution map for the recognised species. **Five new species and one new subspecies** of *Magnolia* sect. *Magnolia* **are described and illustrated**: *M. celaquensis, M. cusucoensis, M. darioi, M. pastorcortesii, M. picopijolensis,* and *M. sororum* subsp. *oligocarpa*. The rediscovery of *M. atlantida* is confirmed after more than eight decades since its discovery in Atlántida, Honduras. The conservation status of each species is evaluated: one is considered least concern (LC), one vulnerable (VU), two endangered (EN) and six critically endangered (CR).

Type specimens of these species are being deposited in TCD herbarium, in the herbarium of the Universidad Nacional Autónoma de Honduras and in the Natural History Museum, London. In the same article, two other new species are described – one each from two National Parks in other parts of Honduras. **None of the above species is known from anywhere else in the world.** Here in TCD, **Prof. Trevor Hodkinson** and **Lila Afifi** have already done pioneering work on the molecular affinities of Magnolias from Cusuco National Park – work that has yet to be capitalized on. **There is still so much more work to be done**: in basic botanical exploration (more boots in the mud!); in describing and understanding these new species; and in protecting them into the future.

Publications

Magnolia (Magnoliaceae) in Honduras: a synopsis with six new taxa

Brief reflection by our Emeritus Fellow Dr. Daniel Kelly

I still have to pinch myself: can this really have happened? In such a supposedly familiar genus as Magnolia, we now have ten species in the Honduran flora, where only three were recognised up to a decade ago; and of these ten, five are new to science.

The task seemed straightforward enough: a plot-based survey of the trees of a modest-sized area of montane forest in Central America. Of course, we know it would involve a lot of challenging work in plant identification. **Cusuco National Park in Honduras** had attracted rather little scientific attention prior to the start, in 2004, of annual expeditions there by teams of field scientists, volunteer assistants and local guides, under the aegis of **Operation Wallacea**. Plunging in with the **Forest Botany team**, it was comforting to meet up with an 'old friend' like Magnolia, among so many exotic unknowns. But the more specimens we encountered, the more puzzled we became. Why did they not match the accounts in the literature? Why did they not match the specimens in the vast herbarium collections at Kew and the Natural History Museum, London? Eventually, I made contact with **Professor Antonio Vázquez**, the Mexico-based specialist on neotropical Magnolia. He too was puzzled by our specimens. We both continued to work on them, and gradually our collaboration intensified.

Publications

Magnolia (Magnoliaceae) in Honduras: a synopsis with six new taxa

A significant breakthrough came in August 2008, when we found both flowers (faded!) and ripe fruits on the same tree of one species (Picture 1). This species is now published as *Magnolia pastorcortesii* A. Vázquez & D.L. Kelly. The name honours our superb local guide, Señor Pastor Cortés. We have since found only a single other tree of this species, in the same all-too-accessible locality as the first tree. Its conservation status is assessed as Critically Endangered.

Picture 1. A Magnolia from disturbed montane forest at middle elevation: fading flower on the right, ripe fruit (a'polyfollicle') on the left. Photo by J. Sampier.

Publications

Magnolia (Magnoliaceae) in Honduras: a synopsis with six new taxa

A distinctive species growing at high elevations was collected in a forest plot in **2004** - but no flowers or fruits were observed. It was not until **2019** that a group of zoologists led by Alan Ward re-found the same tree, collected flowering specimens and took photos (Picture 2). Further study matched these with a specimen bearing fruits that had been collected in the same area by a leading Honduran field botanist, **Señor Dario Mejía**, back in **1993**. The species is named in his honour: *Magnolia darioi* A. Vázquez & D.L. Kelly. Only three individuals of this species have been located; its conservation status is assessed as Critically Endangered.

Picture 2. Magnolia in forest plot in cloud forest at 2150 m altitude. Tree recorded by DLK and Anke Dietzsch in 2011 but not found in flower until July 2019. Photo by Alan Ward.

Publications

Magnolia (Magnoliaceae) in Honduras: a synopsis with six new taxa

The third species is tantalizing! To date, we only have specimens with flower buds and/or immature fruits (Picture 3). **We have still not found either open flowers or ripe fruits**. However, there was enough information to provide the basis for the description of yet another new species: *Magnolia cusucoensis* A. Vázquez & D.L. Kelly, named to celebrate the National Park in which it is found.

Picture 3. The first specimen of this species, collected in 2004. Note that it bore only flower buds (dissected) and immature fruits.

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Culture Night 2022

On 23rd of September, for only the second time, the **Trinity College Botanic Garden** garden opened for Culture Night 2022, hosting guided tours, brilliantly led by **Trevor Hodkinson**, **Daniel Kelly**, **Stephen Waldren**, **Michelle Murray**, while **Midori Yajima** and **Mick McCann** lit lanterns hung in the trees and greeted the guests. It was a great success with **70+ visitors**, despite the deteriorating weather. One couple had travelled all the way from County Clare *especially* for our event, and many lingered after the tours to learn more. We also had a special visitor, **Hanna McKennedy**, daughter of the last Head Gardener of the gardens, Dermot McKennedy, at the time of its move from Ballsbridge to Dartry in 1967 (read more about this story here). As a small child at the time, Hanna helped her father to make detailed notes of all the plants being moved to Dartry. She went on to became an STO in Trinity.

As a result of all the entertaining, we had no spare heads or hands for photos! For **Culture Night 2023** we will be upping our game, and recruiting more volunteer tour guides, photographers and stewards, because it is set to become a regular and much anticipated Culture Night event. Midori stopped mid-bunting hanging to take the only photo before the rain came!

Volunteer photographer required for next year please!

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European Researcher's Night

Another return to in-person events in Trinity was the occasion of **European Researchers' Night**. The Garden teamed with **Trinity Herbarium** to talk plants, climate change, and research, turning the halls of the Botany Department into a friendly and buzzing exhibition. **Christos Chondrogiannis** and **Midori Yajima** from Jenny's lab started the '**plants as sensors' trail** on the Botany steps with some leaf trait monitoring demos; then visitors were ushered inside to the herbarium for tours led by **Trevor Hodkinson** and **Michelle Murray** of the amazing **collection of dried plant specimens, and fossils** (courtesy of **Jenny McElwain**), to showcase how plants retain critical climate information even when dead and fossilised! The entire event was wonderfully assisted by some inventive PGs who literally 'drummed' up a consistent flow of business. The number of signatures in the visitors book speak for themselves! Thanks to Midori for organising and for the wonderful **artwork** she designed especially for the night (visible just inside Botany front door). We're already looking forward to next year's event!

Christos explaining to some school children how chlorophyll is extracted from leaves:

(L-R Trevor, Michelle, Christos and Midori)

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(L-R) Plant activists Katie, Catarina, Sate, Will, Bea and Diego on bongo

Awards

We celebrate the receiving of the **Irish EPA grant award** for the new research project ***'CO_2Peat - Improving methodologies for reporting and verifying terrestrial CO_2 removals and emissions from Irish peatlands'***, lead by **Dr Alina Premrov** (P.I.) and **Dr Matthew Saunders** (Mentor). The CO_2Peat research project is funded under the **EPA Research Programme 2021–2030** (Ref.: 2022 -CE-1100) and it has **started in September.** And more congratulations to **Alina** who's been awarded with the '**Special Purpose Certificate in Academic Practice'**!

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Trinity College Botanic Garden - 5 in Five!

Trinity College Botanic Garden and **Botany** have this year added **another four videos** to our lovely **5 in Five video library** (check it here) showcasing Ireland's native plants and habitats:

Woodland Wildflowers with **Daniel Kelly** (link)

Wildflowers at Trinity College with **John Parnell** (link)

Vegetated Shingle with **Noeleen Smyth**, UCD (guest presenter) (link)

Wildflowers of Dune Systems with **Steve Waldren** (link)

Trinity College Botanic Garden - 5 in Five!

The series following is growing with each new episode and **we now have 15 episodes in total covering a wide variety of habitats**. Schools and colleges are also recommending the videos as aids for their students' field studies. Such is their popularity and our growing coverage of Irish habitats across Ireland, **two new interactive features are being developed** to add interactive capability for users to actively engage with the series: **a map-based interface and a web-based database table interface**. Look out for details on these developments next month. The latest two videos, which were both filmed on the **South Wexford dunes** (in spectacular weather), are specifically **funded by the Dr Beate Schuler**'s fund to highlight some of **Ireland's rare and threatened coastal plants, the seeds of some of which are stored in the Irish Threatened Plant Seedbank** (link) **at Trinity Botanic Garden.** We are currently planning new seed accessions to this important collection and the production of more videos to highlight Ireland's rare and threatened plants. Once again, thanks to everyone involved in making these videos possible, especially the **Cathcart** and **Schuler Funds** and our wonderful presenters. If anyone has any suggestions, or would like to present one of the videos, please contact **Michelle** (murram27@tcd.ie) or **Jenny** (jmcelwai@tcd.ie).

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Athena SWAN Newsletter

EDI committee

We are currently **in the process of updating the SNS EDI/Athena SWAN team page** to reflect the current committee. Here you will find a little bit about who we are, our position on the committee, and how you can contact us! We are currently working on the Athena SWAN Silver Application, but as always, we are available to discuss any matters regarding EDI you may have.

Free donuts!

The **postgraduate EDI survey will be circulated shortly** and as a bit of good ol' fashioned bribery, for all those who complete the survey, you are entitled to a free donut (details will be provided at the end of the survey). Regardless of the donut, this is a really important survey for PG students to interact with as it is a great way to have your voices heard and highlight areas of EDI success in the department, and others that may need working on.

Resources

Check out the following **Higher Education Authority webpage** for lots of useful information on EDI in Irish Higher Education Institutes. There are several sections and resources available on gender, race, and ending sexual violence and harassment.

Visit our website

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! WE ARE ALL PHYTOBYTES !

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Thank you for your contributions!

If you think that you have any news that should be posted in our newsletter,

please send an email to the **Editor, Diego Dylan Bianchi - *dbianchi@tcd.ie***