



# **BOTANICAL UNIVERSITY CHALLENGE 2024 IMPACT REPORT**



**University of  
Reading**

# Botanical University Challenge

## Impact Report for BUC 2024



### **What is BUC?**

The Botanical University Challenge (BUC) is a dynamic and educational quiz that celebrates plants and the next generation of botanists and plant enthusiasts. First held at Kew Gardens in 2016, BUC brings together university teams from across the UK and Ireland to compete through online rounds and a live final for a prestigious trophy. In addition to the quiz, BUC aims to inspire and support the next generation of botanists while fostering a vibrant plant science community. The live finals are combined with a student botany festival, further enriching the experience.

In this report, Dr. Lauren Baker, Secondary Education Officer at the Oxford Botanic Garden and Arboretum and the member of the 2024 BUC Planning Team who led the organisation of the BUC 2024 finals, highlights the impact of BUC 2024 on plant-aware students across the UK and Ireland.

### **Why was BUC set up?**

BUC was founded in 2016 by professors John Warren (Aberystwyth), Jonathan Mitchley (Reading), and Paul Ashton (Edge Hill) in response to a noticeable decline in plant identification skills among biology students. Their research revealed that UK biology curricula had shifted focus to topics like plant reproduction and energy flows, with little attention given to ecology or plant identification.

Data from the Higher Education Statistics Agency showed a significant reduction in botany courses at universities, leaving botany students feeling isolated and disconnected. Many struggled to develop "Nature literacy"—a critical employability skill in fields like ecological consultancy—due to limited networking opportunities.

BUC was established to address this gap, promoting botanical knowledge through its quiz and providing young botanists with the chance to connect, collaborate, and network with peers and professionals.

### **The Development of BUC**

Covering topics from plant identification to biotechnology, BUC quickly became more than a fun quiz, helping to reverse the decline in botanical skills in higher education. What began with five teams at Kew has grown year-on-year, with nearly 20 teams participating online in the pandemic era of 2021 and 2022. In 2023 BUC returned in person and was hosted by the University of Nottingham. 25 teams competed, in BUC 2023 and the event also expanded to include a Student Botany Festival with workshops, competitions, and networking opportunities to develop students further.

In 2024, a record 28 teams competed, with the semi-finals, finals and 2<sup>nd</sup> Student Botany Festival taking place at the University of Oxford, hosted by the Oxford Botanic Garden and Arboretum. The festival was extended to two days to accommodate more programming and networking activities.



## The Aims of BUC

BUC has three core aims:

1. **Fostering Community:** BUC creates a sense of belonging among young botanists, connecting them with like-minded peers and reducing feelings of isolation, which helps to inspire and support their pursuit of careers in botany.
2. **Nurturing Botanical Knowledge:** Through its quizzes and events, BUC reinforces students' understanding of plants and their ecological roles. Workshops, talks, and tours further broaden their botanical knowledge.
3. **Inspiring Future Botanists:** With plants playing a vital role in addressing global challenges like climate change and biodiversity loss, BUC aims to mentor and support the next generation of botanists, helping to build a global network of experts through fun, valuable educational experiences.

## Summary of BUC 2024

In 2024, a record 126 students in 28 teams participated in the online heats, with 85 students attending the finals and Student Botany Festival in Oxford from 28<sup>th</sup>–30<sup>th</sup> August. Key highlights of the programme included:

- **University of Cambridge** won a nail-biting final against University of York.
- **18 academics and industry experts** delivered talks in four diverse sessions on careers inside and outside academia, as well as a plant science research showcase.
- **Professor Alex Antonelli**, Director of Science at Kew, gave a brilliant keynote address.
- **4 PhD students** hosted an honest and open panel on the realities of postgraduate study and early career research.
- **9 botanical and environmental organisations** participated in the Careers Showcase, offering students networking opportunities and career advice.
- **10 workshops** were held on topics such as botanical illustration, conifer identification, ethnobotany, conservation, and science communication.

Participation in BUC was free of charge to students and included accommodation for two nights in Queen's College, Oxford University, and all catering, including a formal dinner on the first evening and a networking event held out of hours at Oxford Botanic Garden and Arboretum.

The full programme is shared with all funders as part of this report.



## Student Feedback from BUC 2024

Out of the 85 student attendees, 58 completed the feedback survey by 16th September 2024, resulting in a 68% response rate.

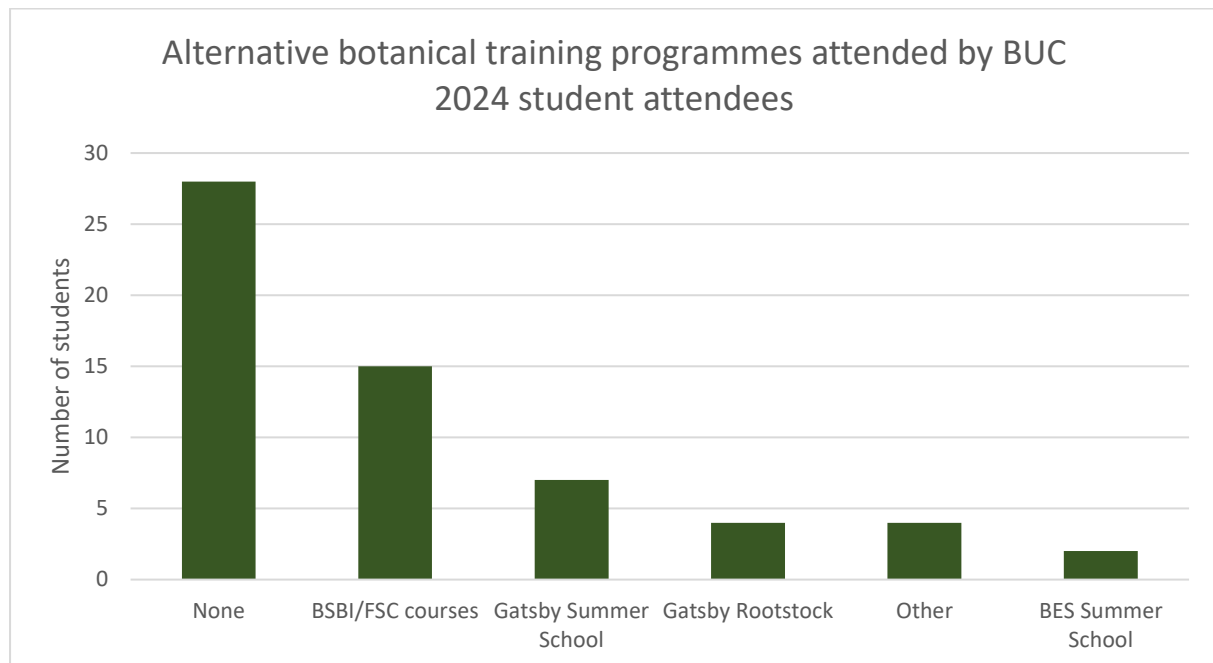
### Attendance of other botanical training events

To assess whether BUC is attracting a different demographic compared to existing botanical training opportunities, students were asked if they had participated in other botanical skills training events. The list of programmes was curated by the BUC Planning Team, with an 'Other' option available for less well-known courses.

Of the 58 respondents, 28 had not attended any other botanical training programme. The remaining 30 had participated in at least one other programme, with BSBI or FSC courses being the most common alternatives. Notably, no student had attended more than two programmes.

Four students selected the 'Other' option, citing events such as a Botany Foray in Wisconsin, USA; Operation Wallacea at Knepp Estate; ARU's 6-week botany course led by Nigel Cooper; and an RHS Summer Studentship.

These findings indicate that BUC is successfully reaching a broader and more diverse audience of students, many of whom have limited exposure to other formal training opportunities. This highlights the event's unique appeal and potential to fill a gap in current botanical education offerings.







The table below summarises the data shown in the word cloud, including the raw terms provided by students, with no duplicates.

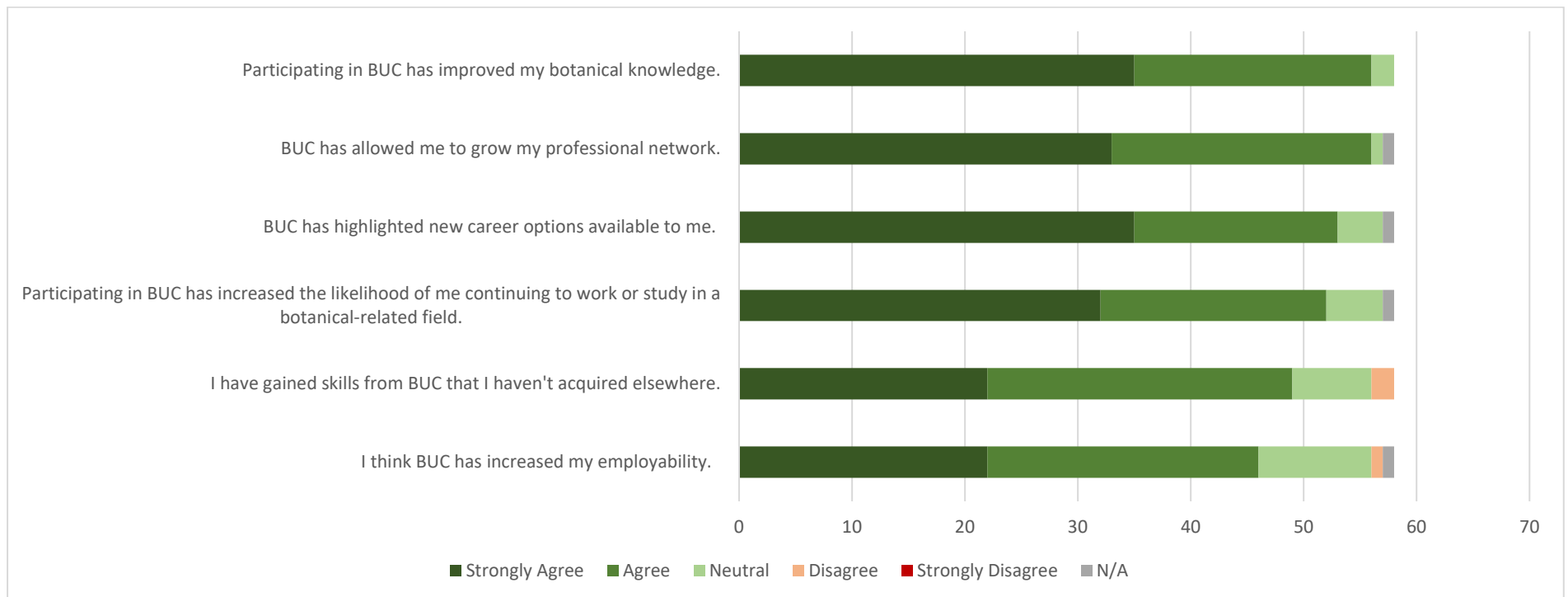
Theme	Words Submitted	Count
<b>Connection</b>	Socialising, inclusive, friendship, welcoming, meeting, networking, comradery, like-minded, social, community, connectivity, friends, collaborate, symbiosis, young	43
<b>Education</b>	Knowledge, learning, educational, opportunity, enriching, engaging, informative, experience, growing, growth, rewarding, expanding, insightful, botanical, specialist, flora, unique, compete	48
<b>Inspiration</b>	Eye-opening, future, enthusiasm, inspiring, motivating, passion, possibility, mind-expanding, challenging, curiosity-driven, encouraging, expression	32
<b>Fun</b>	Enjoyment, amazing, celebrating, unforgettable, joy, worthwhile, interesting, memorable, exciting, funny, exhilarating	42



### Student perception in the value of BUC

Students were presented with a series of statements to evaluate the perceived value of participating in BUC. The results indicate a strong positive impact across all six areas:

- 56 out of 58 (96.6%) agreed or strongly agreed that their botanical knowledge had increased through participation.
- 56 out of 58 (96.6%) agreed or strongly agreed that BUC had helped them grow their professional network.
- 53 out of 58 (91.4%) agreed or strongly agreed that BUC had introduced them to new career options.
- 52 out of 58 (89.7%) agreed or strongly agreed that BUC had increased the likelihood of continuing to work or study in a botanical field.
- 49 attendees (84.5%) agreed or strongly agreed that they gained skills through BUC that they could not acquire elsewhere.
- Lastly, 46 out of 58 (79.3%) attendees agreed or strongly agreed that BUC had improved their employability.



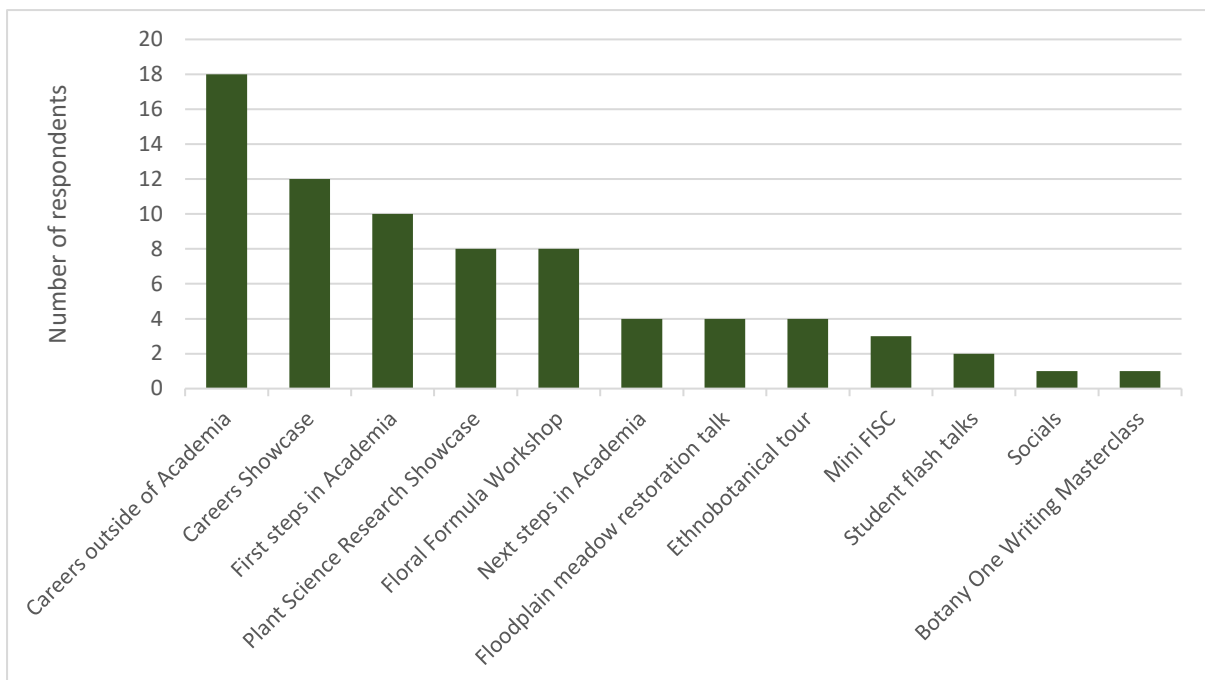
## Student rating of BUC 2024

When asked to rank BUC 2024 on a scale of 1-5 stars, 95% of students gave BUC 2024 a 5-star rating. 5% gave BUC 2024 a 4-star rating.

*“Everything genuinely felt crucial and valuable to attend because there was so much knowledge and mentoring available at the event! I was greatly inspired and excited by the keynote speech from Alexandre Antonelli and found the session on further study extremely useful given I am planning my next steps in postgraduate study, so the tips, advice and wisdom of the four speakers was exceptionally helpful!” – quote from student.*

## Sessions of most use for professional/academic development

Students were asked which session they found most useful for their professional or academic development, with an open-ended option to list more than one session. The responses revealed a broad range of preferences, though the most popular was the **"Careers Outside of Academia"** session, mentioned by 17 students. This session featured talks from an ecologist, an applied crop scientist, a charity-based citizen science research manager, and a conservation and horticultural expert working with organisations like BSBI and Plantlife.



The **"Careers Showcase"** also received significant positive feedback, as did the **"First Steps in Academia"** panel, where current PhD students candidly discussed their experiences, shared advice on selecting courses and labs, and answered audience questions in an informal setting.

75 submissions were given from the 58 respondents, as some students listed multiple sessions in their response. This figure shows the diversity of sessions that students found useful for their development and the range of opportunities provided by the BUC Student Botany Festival.



### Impact of BUC on career aspirations

Students were asked to describe the impact BUC 2024 had on their career aspirations. Responses to the open-ended question were analysed for recurring themes.

Sixteen students mentioned that BUC exposed them to new career options, including interdisciplinary fields where botany is a key skill, such as ecology and applied agriculture. Notably, eleven students expressed a newfound interest in pursuing further study, including Master's, Ph.D., or Post-Doctorate programs.

One student noted:

*“It has highlighted that I can also use horticulture in my ecology/conservation career, which I had not considered before. It has made me want to undertake further study at Masters or Ph.D. level.”*

Other common themes included:

- Increased ambition and self-belief (5 responses).
- A desire to continue developing botanical skills through additional training courses like FISCs (4 responses).
- Enhanced understanding of career paths in and out of academia (4 responses).

Eight students specifically mentioned that BUC boosted their confidence in pursuing a botanical career:

*“I was always worried there was no place for plant biologists and the industry jobs were hard to find, but now I know I won't have to settle for just any option and there is a place for my skillset in the workforce. It has eased that anxiety for the future.”*

These responses clearly demonstrate BUC is achieving one of its core goals of **inspiring future botanists**, supporting their education through fun, diverse programming centred around a friendly competition and facilitating the creation of new professional networks that could last their entire careers.



### Specific connections or collaborations

A second open-ended question asked students about specific connections that had arisen directly from participating in BUC. This question was optional, and 54 students chose to respond. Their answers highlight the strong support network facilitated by BUC, as several students reported forming ongoing support networks among peers, including discussing Ph.D. projects with undergraduates, maintaining networks through social media, and sharing funding suggestions:

*“I have joined the BUC iNaturalist project, and we have a WhatsApp group with all the students who participated. I feel I can ask for advice or connect with these peers in the future for botanical-related projects.”*

*“Befriended the York team (even though we were playing against them) and I’ve agreed to be on hand to answer Ph.D. questions for some students looking to apply for them...”*

*“I met [redacted], who has more knowledge on soil compaction—potentially relevant to my research. He pointed me toward some research I could use in future grant proposals to highlight applications of my work.”*

Additionally, several students mentioned invitations to join specialist interest groups, present posters, or explore internships:

*“After Jenny McElwain’s talk, I approached her at the botanic gardens reception. After chatting, she recommended I send her an email to apply for an internship in her lab back in Dublin.”*

*“It’s early days, but I hope to gain practical experience in ecology at FCPR. I plan to take my FISC test in 2025 and attend BSBI field meetings.”*

*“I connected with BSBI to present a poster on my research later this year!”*

This feedback provides strong, demonstrable evidence that BUC is achieving its core aim of **fostering community.**



## A message to the participants of BUC 2025

The penultimate compulsory question for BUC 2024 attendees was: “What would you say to students considering taking part in BUC 2025?” This open-ended question allowed for responses of any length.

Out of 58 respondents, 37 directly encouraged others to participate, with 22 using the phrase “Do it” in their feedback. Many respondents elaborated on their encouragement by highlighting several key aspects:

- **Fun:** 31% described BUC as highly enjoyable.
- **Reassurance:** 17% emphasized that the event is supportive and not stressful, daunting, or intimidating.
- **Educational Value:** 29% noted the opportunity for significant learning.
- **Community Building:** Over 30% mentioned the chance to connect with like-minded peers and mentors.
- **Overall Value:** 53% characterized BUC as a valuable and worthwhile experience that positively impacted their development and/or career.

To illustrate the personal impact of BUC, here are a few selected quotes from participants:

*“Whether you are a diehard plant fan or have more tangentially related interests, BUC is a fantastic opportunity to learn more about the botanical world and meet amazing people who are passionate and incredibly knowledgeable about their fields and interests.”*

*“Do it! It is not about winning, it is about broadening your knowledge and network, and having fun! Our team came last and I would happily come last next year if I can experience all of this again!”*

*“DO IT! It was one of the most enjoyable events I have ever been a part of...”*

*“Must Attend Opportunity, it goes beyond imagination ...”*

*“Absolutely go for it! If you're interested in plants, this is an unbeatable way to further your knowledge and find out how you can use your interests in a future career.”*

*“...It's also so much fun! Though there is the element of competition, it very much feels like a community of like-minded people all coming together to celebrate a shared love of plants and botany.”*

*“Do it!! Even just participating in the challenge is a great experience! Every question is a win win: either you get the question right, or you have something new to research! Participating in the BUC is something to look forward to every year!”*

## Evaluating the success of BUC 2024

BUC 2024 was the largest event to date. This continuous growth shows previous years has provided a product of value to participants, but to truly analyse the success of BUC 2024, it is important to use the evaluation data and compare it to the core aims of BUC:

**Fostering community** was evident as students highlighted the strong sense of belonging and the valuable networking opportunities provided, with many expressing that BUC allowed them to connect with like-minded peers and mentors.



In terms of **nurturing botanical knowledge**, participants consistently praised the educational value of the competition and related sessions, noting significant gains in their understanding of botany and plant sciences.

Finally, BUC 2024 succeeded in **inspiring future botanists** by exposing students to diverse career paths and encouraging further study. Respondents reported increased ambition, a heightened sense of career possibilities, and a reinforced commitment to pursuing careers in botany. Overall, the feedback underscores BUC's success in creating a supportive, informative, and motivational environment for its participants.

### **The Vital Support from BUC Donors**

None of this would have been possible without the generous support of donors who contributed both with monetary and in-kind donations.

BUC supports widening participation and prides itself in having an open to all policy. Donor support ensured that students from a wide range of backgrounds were able to participate in such an inspiring event, without worrying about financial considerations.

The BUC planning team would like to thank the following organisations for their valued support which collectively provided £ £39,394.77:

- The Gatsby Foundation
- New Phytologist Foundation
- The Annals of Botany Company
- Botanical Society of Scotland
- Society of Experimental Biology
- RSK Biocensus
- University of Reading
- Edge Hill University
- The Wildflower Society
- The Botanist Foundation
- Ecology by Design
- Garden Centre Association
- University of Bristol
- University of Plymouth
- University of Cambridge
- Royal Botanic Gardens, Kew
- Trinity College Dublin
- Eden Project University Centre  
Cornwall College
- Durham University
- FPCR
- BGCI
- Lancaster University
- Anglia Ruskin University
- St John's College, University of Oxford
- University of Edinburgh
- University College Dublin
- University of Portsmouth
- Aberystwyth University
- And private donors

The BUC planning team would also like to thank the following organisations for their support of BUC 2024 through donating prizes, running workshops, or offering operational support and discounts:

- The Queen's College, University of Oxford
- University of Reading
- Oxford Botanic Garden and Arboretum
- The Friends of Oxford Botanic Garden and Arboretum
- Field Studies Council
- Botanical Society of Britain and Ireland (BSBI)

There is no doubt that the external funding that was received enabled BUC 2024 to run, and ensured that more students than ever were able to participate.

## **Video testimonials**

Feedback from BUC 2024 participants, filmed on Friday 30<sup>th</sup> August 2024 in the Oxford Botanic Garden and Arboretum can be seen here: [BUC 2024 - what three words short v1.mp4](#)

A one minute highlights reel of the whole event can also be watched here: [BUC 2024 - short v3.mp4](#)

## **The Vital Support from the BUC Planning Team 2024**

Even with financial support, BUC currently requires a large amount of volunteer time and effort in the planning and administration.

A huge thank you to Dr Jonathan Mitchley and the University of Reading for their unwavering support of BUC, providing fundraising, administrative and operational support, as well as hosting the online heats in February.

A second huge thank you to Dr Lauren Baker and the University of Oxford Botanic Garden and Arboretum, who supported fundraising and coordinated the BUC 2024 Semi-finals, finals and associated Student Botany Festival – a logistical feat that required approximately 2 months' worth of voluntary time.

Thanks to Professor John Warren and Dr Meriel Jones for leading the question setting together with support from Dr Helen Ougham and Dr Nigel Chaffey. Thanks also go to Dr Meriel Jones for her work on The Thymes newsletter, maintaining the BUC website and the BUC social media channels.

A final thanks to the rest of the BUC Planning Team, who collectively assisted with preparing material for publication and technical and logistical support for the BUC programme: Dr Sven Batke, Dr Colin Clubbe, Dr Alastair Culham, Jonathan Charmley, Sebastian Stroud and Hannah Hall.



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