

Dr James Walmsley

Educating tomorrow's foresters is a multi-faceted vocation. In the latest of an occasional series of features showcasing roles within the industry, Bangor University's School of Natural Sciences Forestry Lecturer, Dr James Walmsley, talks to Carlyne Locher on what his role entails.

BANGOR University is located just to the north of Snowdonia National Park in North Wales and forestry has been taught here for 115 years. Of the 100 or so academic staff within the school, 12 directly facilitate forestry education. "We are an interdisciplinary school and students study a range of modules," says Dr James Walmsley. "Members of staff range from foresters to those that see themselves more as tropical ecologists, social scientists, soil scientists and agroforesters."

As course director, James - who views himself as a general forester - oversees five forestry degree programmes: three undergraduate degrees (BSc Forestry, MFor Forestry, BSc Conservation with Forestry) and two postgraduate distance-learning degrees (MSc Forestry and MSc Tropical Forestry). He likens his role to that of a spider crafting a web: liaising with colleagues and guest speakers; structuring study timetables for students and colleagues; writing new course modules; organising, leading and facilitating field trips and study tours; and responding to individual queries from colleagues, students, alumni, employers and other stakeholders.

As senior lecturer, James runs lectures, seminars and one-to-one tutorials, marks coursework and exams, advises on dissertations and leads field trips for students across all years.

"We have over 200 students studying across our undergraduate and postgraduate forestry-related degrees, with more than half studying at MSc level via distance learning," he says. He relies on 'to do' lists and an Outlook calendar for forward planning multiple work streams of varying complexity.

James, 41 and originally from Bedfordshire, champions anyone who wants



James working with distance-learning students in the Bobiri Forest Reserve (Ghana). This group was attempting to relocate model caterpillars that had been placed in the forest the day before.

James at the foot of a mighty *Ceiba pentandra* tree in Bobiri Forest Reserve, Ghana.

as wide an education as they can achieve. He says: "A forestry education at Bangor is what a student makes of it. There is a world of opportunity out there. Undergraduates can spend three years here pursuing a challenging degree leading to opportunities in forestry professions, or postgraduate research or study. Others opt to spend their second year abroad, on exchange placements (e.g. Canada/Finland) or 'international experience' (e.g. South Korea, Japan, USA), before returning for their final year."

His own education and experience illustrates this well. At school, his careers advisor told him there were no jobs in forestry, but that there would be opportunities in 'the environment'. He followed up an Environmental Science degree (Birmingham University, 2000) with an MSc in Environmental Impact

Assessment (EIA) (Aberystwyth University, 2001). His first 'proper' job was as an EIA researcher at the University of Manchester.

Tiring of city life, James travelled to Australia, where his adventures included volunteering with the then Department of Conservation and Land Management (South West Australia) as a forest ecologist, surveying forest habitats as part of a study to investigate the decline of Western ring-tailed possum. While travelling across Asia, a friend from home mentioned that Bangor University was offering forestry PhDs. Recalling his initial interest, he applied. From a phone interview (with James in an internet café in Chang Mai, Thailand) he was offered a place, which he initially deferred.

Returning to the UK, and at the University's invitation, James visited Bangor and found a thriving forestry department.

Beginning his PhD in 2004, and given the freedom to devise his own research programme, he gatecrashed forestry lectures and field trips, catching up on the education he had missed. Completing his PhD in 2008, his only regret is the title: 'Forestry: 'whole tree harvesting and wood ash recycling to forests: Case Studies in Upland Sitka spruce in Wales'.

"Rather than 'wood ash', I wish I had used the phrase 'bio-ash'. The word 'bio' was an invention that came after my PhD was published and, along with 'bio-char', seems to attract far more interest than 'wood ash', he says.

An opportunity to organise the distance learning forestry programmes arose shortly after he completed his PhD. Seizing it, he rapidly expanded the programme, with student numbers increasing from less than 30 in 2009 to over 100 four years later. Becoming senior lecturer in 2016, he took on the role of course director for the undergraduate programmes.

His teaching timetable varies from zero to 60 plus hours a week (on study tours).

"The key skill required for a lecturer is communication. You can be the most knowledgeable expert on a topic, but if you cannot communicate clearly and you cannot excite, enthuse or interest a student, they will not engage."

At the start of a degree, undergraduates use lecture theatres, seminar rooms, the Deiniol Library, which has "one of the best collections of

Dr James Walmsley with distance-learning students, colleagues and partners from the Forestry Research Institute of Ghana in 2017.

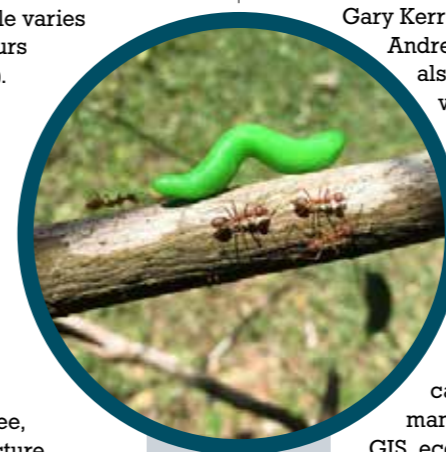
forestry-related literature in the country" and Bangor's state-of-the-art computing facilities. Students are introduced to the complexities of forests on regular visits to sites on Bangor's doorstep, "breaking down preconceptions that all forests should be filled with native oaks, bluebells and red squirrels. Tree identification is a core activity in the first semester and students rapidly master the identification of conifers, despite initial nervousness."

From the start, students are encouraged to create a parallel education alongside their formal curriculum, in keeping with their own interests. "The Bangor Forestry Students Association surpass all expectations, organising guest speakers pretty much every week. They are phenomenal." Recent speakers include Shireen Chambers (ICF), Gary Kerr (Forest Research) and Andrew Heald (Confor). They also organise regular

volunteering activities including tree planting, coppicing, and pruning.

Second- and final-year modules enable students to specialise, studying topics including silviculture, inventory, forest and woodland management, catchment processes, management planning, GIS, ecology and the forestry profession itself.

To illustrate specific topics, Bangor is fortunate in having



Close-up of a model caterpillar.

access to sites such as Clocaenog Forest. Managed by Natural Resources Wales and Forest Research, it is one of three large-scale experimental continuous-cover forestry (CCF) sites in the UK. "It is an ideal study site to learn about standard clearfelling as well as showcasing successful alternative silvicultural systems," says James.

Final-year undergraduate students spend most of their time working on practical projects and dissertation research. 'Self study time' might be spent at Treborth Botanic Gardens, in the herbarium or tropical glasshouses, or looking at soil/fungi interactions in the Rhizotron (underground lab) or performing surveys in the semi-natural woodlands. Similarly, the University research farm (Henfaes) provides a wealth of opportunities for final-year dissertations.

James says: "Several students (including postdoctorates) are working on 'BangorDiverse' (part of the global research network 'TreeDivNet'), a seven-species trial looking at what happens when trees are planted in single- or multiple-species configurations. The possibilities are limited only by the ambition of the student and constraints that are common to all research."

For MSc students, some modules are compulsory for all. The latest silviculture module was completed by 15 residential MSc students and 40 distance-learning students. "On modules where attendance combines distance-learners (including professional foresters) and full-time students (often career-changers), the feedback is hugely positive. All benefit from the group experience, such as the real-world expertise (of distance-learners) and the energy (of the full-time students). This also helps to avoid distance-learning becoming an isolated learning experience."

Distance-learning students engage via a Virtual Learning Environment (VLE), generally 15 to 20 hours a week of study time. James says: "Lectures, seminars, guest lectures and visiting speakers are broadcast live in webcasts. Distance-learning students join our full-time postgraduate students live if they are able to. If other commitments conflict, they catch up afterwards."

In December, James received his own (internal) training focusing on learning technologies (Kahoot! software) to enhance student engagement and participation. "Yesterday, I developed a live interactive quiz that enables students to participate anonymously via their phones, in real time. It allows me (and the students) to see instantly, for example, that 75% of the group feel confident answering questions on tree species identification, or that 80% are unsure of a term used in forest measurement."

His work continues on the MSc 'Forest Management Planning' module handbook. Students (full-time and distance-

A DAY IN THE WORKING LIFE

learners) come to Bangor for an 'intensive residential', spending a week learning about management planning and being challenged to develop a vision for a forested landscape up to the year 2100.

"We follow standard management planning protocols," says James. "Stretching the imagination over that time-span is hard: there is no single right answer. How certain words are used can change people's minds and determine the future of a forest. A plan could detail a site purely in terms of what is on site: oak, rowan, Sitka, larch, planted 1970; presence of red squirrels; footpaths, car parks, watercourses and so on. Describe the site instead by using value-based terms such as veteran, natural, ancient, unproductive, exotic, non-native, invasive, special, degraded, etc, and people start to get excited. This year we are introducing agricultural land and silvopasture into the study area, to reflect the increasing focus on afforestation."

Next month, James and colleagues will lead 65 students on a study tour to Scotland, exploring the role of hedges, trees and small copses as part of landscape-scale attempts to reduce flooding, and the use of new technologies such as LiDAR and drones for upland forestry plantation management. "Some students have never seen the inspiring work done by volunteers (Carrifran Wildwood), or been to a large-scale commercial forest (Eskdalemuir) or sawmill (James Jones & Sons): this really helps to bring their studies to life."

James is currently planning the compulsory two-week Tropical Forestry Study Tour, which will take place in Ghana in July 2019, in collaboration with the Forestry Research Institute of Ghana (FORIG). Planning is complex. Students fly in from numerous locations across the planet, requiring assistance with issues such as visas and persuading employers to allow them time off, and all logistics such as travel, accommodation, food, staffing, negotiating with local guides, experts and facilities must be organised

James says: "Ghana's forest resource is fantastically diverse. The government is looking at reversing deforestation through plantations. Week one includes visits to degraded forest sites, primary and secondary forests, timber plantations of *Tectona grandis* and *Cedrela odorata*, nurseries, cocoa agro-forestry sites and sawmills."

In week two, student-led projects are undertaken in and around a 5,500-ha forest reserve. Preliminary findings are presented to stakeholders on the final day of the study tour, including staff at the Forestry Research Institute of Ghana, with students taking centre stage. "Last time, one group looked at the levels of herbivore predation in different



James with a view looking north from the Tano Sacred Grove, central Ghana.



One of the obstacles the group faced when attempting to move around within the Bobiri Forest Reserve.

forest types. On a global basis, herbivores such as caterpillars graze 70% of annual forest biomass growth. Understanding what predated on these herbivores, in different forest types, is one step in understanding, and then addressing, the problem.

"Common both to UK and overseas study tours, we always meet and work with Bangor graduates; it's unavoidable. It's always a delight to see how the careers of a student I have taught has developed."

Since his PhD, James has published 22 papers. 'Stump harvesting for Bioenergy – a review of environmental impacts' (2010) won him the 2010 ICF Silvicultural Prize and has since been cited by many researchers. Perhaps his proudest moment came in 2014, when Bangor University awarded him a Teaching Fellowship in recognition of his outstanding contributions.

"My role is very much concentrated on teaching and scholarship and I really enjoy helping them fulfil their aspirations," he says. "One student has just published an article for Forestry Journal (Jemima Letts)."

James acknowledges that getting younger generations interested in forestry and working in the sector is an issue, adding, "There are more students in our first year at Bangor than there have been for a generation, but we do not have a simple explanation for this. I do wonder if forestry's web presence needs an overhaul."

What would James say to an employer who may consider an undergraduate's lack of real-world experience to be a drawback?

"A degree is not a production line or a factory. No two graduates are the same. Some might have insights into other forest cultures or have experience of organising and leading teams of student volunteer activities, but were absent from a tutorial on discounted cash flows. Some may excel academically while others who are less academically capable may be phenomenally successful commercially. Judge each and every one on their own merits.

"The age profile of foresters has shifted over the last decade, with many retiring. For a student that is open-minded, enthusiastic and committed to learn, there is a world of opportunity out there for them."

TO find out about Bangor University and the forestry courses offered by the School of Natural Sciences, including additional International MSc courses (two-year TRANSFORM, SUTROFOR and SUFONAMA), please go to: www.bangor.ac.uk/natural-sciences/subject-areas/forestry/courses.php