

ADDRESSING SHORTAGES OF PROFESSIONAL FORESTERS IN IRELAND

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ADDRESSING SHORTAGES OF PROFESSIONAL FORESTERS IN IRELAND

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Abstract

Ireland is not a country with a long history of forestry or forestry education. However, from a forest cover level of 1% of the land area in the early 1900s to 11% in 2020, mainly due to the prevailing temperate climate being ideally suited to the growth of coniferous species (for example *Picea sitchensis*), a thriving forestry sector has developed. Formal forestry education began in the 1920's and while student and graduate numbers were always modest, they increased during the 1990's, in line with the expansion of the private forestry sector. In recent years, there has been a reduction in the number of applications to study forestry and a shortage of forestry graduates has been noted right across the sector. To address this, representatives from across the forestry sector have come together as 'Forestry Careers Ireland' to create awareness of the potential of forestry as a career. Updated information on a careers portal, visits to secondary schools, printed materials and involvement in science festivals are all examples of work undertaken.

Keywords: Ireland, forestry, education, graduate shortage, career promotion

Ireland and the Bologna Agreement

The Bologna Agreement was formally signed in 1999 by 29 European countries, including Ireland, and saw the establishment of the European Higher Education Area (EHEA) (European Commission/EACEA/Eurydice, 2020). Membership has since expanded beyond Europe and, in 2019, there were 48 signatories to the Agreement. In Ireland, the majority of higher education students exit formal education having achieved a Bachelor's degree; the length of degree programme is dependent on the subject of study but the majority are of three or four years' duration. At the time of writing, the latest national report for Ireland on the EHEA website relates to the period 2012-2015. During the 2012-2015 period, approximately 50% of first cycle higher level degrees were awarded after completion of 180 ECTS credits, approximately 50% had a weighing of 240 ECTS credits and a very small number of degree programmes required 300-360 credits (predominately in dentistry, medicine and veterinary medicine) (eha.info accessed 07/06/2021). In terms of student numbers, 56% of students were enrolled in courses of 240 ECTS credits (EHEA, 2020).

Prior to the Bologna agreement, Ireland had begun to develop a framework of undergraduate and postgraduate degrees as well as a system to reflect the structure and relationships between various levels of qualifications. These processes became associated with Ireland's implementation of the Bologna agreement; Ireland's

National Framework of Qualifications (NFQ) identifies ten levels of educational qualifications – levels 7 and 8 correspond to the first cycle in the EHEA framework (nfq.qqi.ie accessed 07/06/21). It should be noted that holders of a level 7 ('ordinary') Bachelor's degree are not automatically entitled to progress to the second cycle (Masters level) unlike holders of the level 8 ('honours') level Bachelor's degree.

Ireland and forestry education

Forestry education in Ireland has formally been offered in University College Dublin (UCD) since 1913 with the appointment of Augustine Henry as the first Professor of Forestry (Gardiner and Nieuwenhuis, 2014). Alongside this, there were informal training schools in Avondale, County Wicklow and later in Shelton Abbey, County Wicklow and Kinnitty, County Offaly; these were managed by the Government department in charge of agriculture and all had ceased to operate by 1985.

With the expansion of private forestry in the 1980's, two other higher education programmes in forestry were developed, one in Waterford Institute of Technology (WIT) and the other in the Galway-Mayo Institute of Technology (GMIT). Both were initially Level 7 or Ordinary Bachelor degrees, and while the GMIT course stopped accepting students in 2008, the WIT course continues and has developed a one year 'add-on' course that enables students to graduate with a Level 8 or Honours Bachelor degree.

The UCD forestry programme is a specialisation within the Level 8 Bachelor of Agricultural Science degree. The degree programme was traditionally five years in duration - a year of basic sciences, followed by two years of subject-specific modules, then a full year of professional work placement and a final year of intensive subject-specific study. This structure was altered in the mid-1990s to shorten the programme to four years to bring it more in line with other Bachelor programmes with the objective of increasing the attractiveness to potential students (Gardiner and Nieuwenhuis, 2014). This consolidation was achieved by amending academic content and reducing the required period of professional placements.

In the early years of the forestry programme, there was sometimes only one graduate, or in some years, none. The total number of graduates from 1913 to 2013 was 483; 87% of whom were male.

Ireland and forestry

Through many years of exploitation, mismanagement, and forest clearance, as well as an increasing population which necessitated an expansion in agricultural output, forest cover in Ireland in the early 1900s was estimated to have fallen to approximately 1% of the land area. With the founding of the Irish state in 1922, the Government launched a plan to increase forest cover with the objective of self-sufficiency in wood supply

and also as a source of employment opportunities. Records indicate that in the year 1923, the planting programme was a mere 388 ha and it was considered that the role of growing trees for timber should be taken on by the State, given the long-term nature of the rotation (OCarroll, 2004).

It was well accepted that agricultural production and protection of the rural economy had precedence over afforestation; to protect and maintain the country's capacity for food production, the maximum price which was to be paid for land to be afforested was set at a very low level. This ensured that only 'low quality' land, i.e. land considered marginal for agricultural production, could be planted. The next conundrum was what to plant on such land, and species trials were necessary to identify what would not only survive, but grow and produce timber on often relatively inhospitable site conditions. Thus began the association of Ireland with Sitka spruce (*Picea sitchensis*), and for several years with lodgepole pine (*Pinus contorta* var *latifolia*); both species of northwest American origin.

It was not until the 1980s that considerable financial incentives were made available to encourage private landowners to undertake tree planting; this period also saw the development of the private forest sector as nurseries, contractors and forestry consultants expanded to meet growing demands. In 1988, the management of the public forest estate was legally transferred to an entity called 'Coillte Teoranta': the shareholders are the Minister of Finance and the Minister for Agriculture, Food and the Marine, and the company was given a remit to operate as a commercial company. The company now has three distinct businesses: forestry, land solutions and panel board production.

The 1996 Government strategic plan established an ambitious target of achieving 17% forest cover by 2030; however, the planting targets needed to achieve this were never realised and in more recent years, even the more modest annual planting targets of 6,000 ha are not being met (Figure 1) (Department of Agriculture, Food and the Marine, 2020; Department of Agriculture, Food and Forestry, 1996).

Forest cover is now approximately 770,000 ha or 11% of the land area, one of the lowest rates in Europe (Department of Agriculture, Food and the Marine, 2020). Ownership, in terms of area, is almost evenly split between the public and private sectors with the privately owned areas dominated by forests less than 30 years old. Sitka spruce remains the most widely planted species and now accounts for just over 50% of the forest estate (Department of Agriculture, Food and the Marine, 2020).

Demand for qualified foresters

There are an estimated 25,000 private forest owners, each owning an average of eight ha of forest; these small disparate forest areas present quite a challenge in terms of forest management due to their often inaccessible locations and the variety of

objectives of the forest owners. Given the relative ‘newness’ of forestry as a land use, most forest owners have little expertise in forest management and rely on the guidance of professional foresters. In recent years, a series of Government funded initiatives have been developed to equip private forest owners with the knowledge and skills required to become more proficient and confident in the active management of their forest properties.

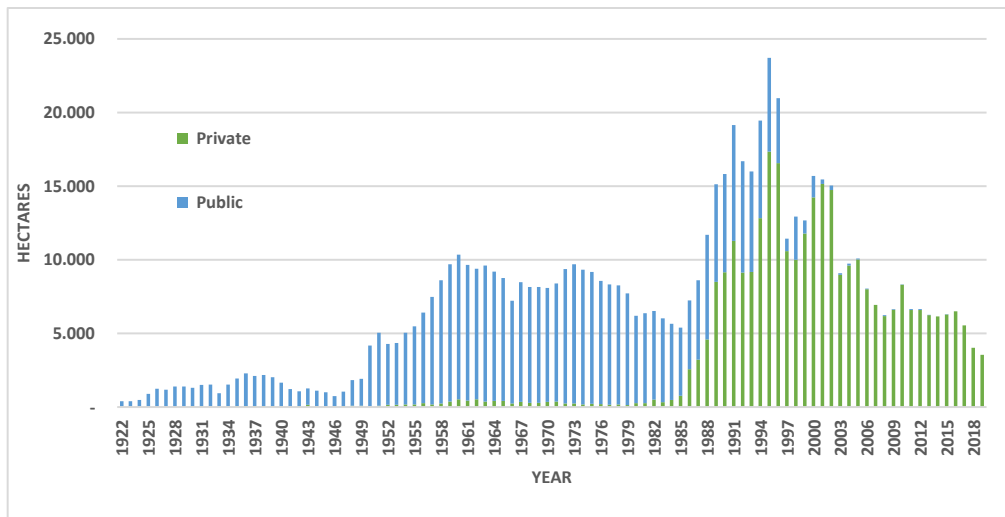


Figure 1: Public and private annual afforestation, 1922-2019 (DAFM, 2020)

Roundwood production in Ireland is forecast to grow to 8 million m³ per annum by 2035 (this represents a doubling of output from approximately 4 million m³ in 2016) and the growth in output is expected to come from the maturing private estate which for the first time exceeded one million m³ in the period 2017-18 (O’Driscoll and Moore, 2020; Phillips et al., 2016). This, coupled with increased societal expectations from our forests, has resulted in an increasing demand for suitably qualified forestry professionals. However, there has been no corresponding increase in applications to study forestry in either of the third level institutes where forestry is taught. In fact, over recent years, there has been a reduction in applications; a phenomenon that seems to have been mirrored in many other forestry programmes for several years (Innes, 2010; Nyland, 2008).

Accessing higher education in Ireland

Access to the majority of third level – or higher education – programmes in Ireland is dependent on the grades achieved in the Leaving Certificate examination which is undertaken in the final year of secondary school. Grades are converted to numbers and summed to provide what are commonly referred to as ‘CAO points’ – the Central Applications Office being the entity that manages the higher education application system.

Broadly speaking, programme places are allocated on the basis of supply and demand. There is a perception that ‘higher points’ programmes are more prestigious and that those requiring relatively low points may not be of good quality or may not result in a worthwhile degree. This is somewhat contradicted by the findings of a 2006 study, which indicated that, in the majority of cases, students actually apply for programmes based on their preferences while other factors, like the ‘points race’ and location play a smaller role in their decision-making (Gormley and Murphy, 2006).

Accessing the UCD Forestry programme

For the forestry degree at UCD, the knock-on impact of a reduction in applications is a reduction in the CAO points (which is a reflection of academic achievements scored by future students at the final examination of secondary school) needed to access the programme as the law of supply and demand takes hold (Figure 2). This has meant that a proportion of students offered places on the programme in recent years have found themselves academically unsuited and the drop-out rate in the early stages is relatively high when compared to other specialisations of the Bachelor of Agricultural Science. A number of students also find themselves in Forestry by default as they list Forestry lower in their CAO list of preferred Agricultural Science programmes. Ultimately, many discover a fascination for Forestry and become committed to the study of Forestry. There is also routinely a cohort of students whose preferred course of study is Forestry – these are the students that take little convincing from the outset that a varied, rewarding, and challenging career awaits.

For many years, the suite of specialisations in the Bachelor of Agricultural Science degree were accessed through one CAO offering; the entry points were the same for all programmes. Denominated entry came in 2001 and the ‘gap’ between several smaller programmes, including Forestry, was evident from the outset (Figure 2). From 2008, the gap appeared to widen and for the 2017 intake, a decision was made to reduce the number of places available for forestry.

There has been a proliferation of higher education programmes in recent decades and navigating through these offerings has proved somewhat confusing for applicants. As a consequence of this, the CAO has been trying to encourage a more consolidated and streamlined applications process. For some years, the Forestry programme staff, and those of other smaller programmes, rallied against this as it was felt that a separate listing for each of the specialisations of the Agricultural Science degree seemed to at least offer some visibility and a distinct identity. There was also the very real fear that amalgamating smaller ‘less popular’ programmes with those that historically have had high demand for places (and significantly higher CAO points requirements) could result in extremely low student numbers for the smaller programmes. However, the pressure to amalgamate prevailed and in 2021, the Forestry programme will be accessed under the same listing as many other UCD Agricultural Science

programmes. It remains to be seen whether there will be a positive or negative impact on intake to the Forestry programme.

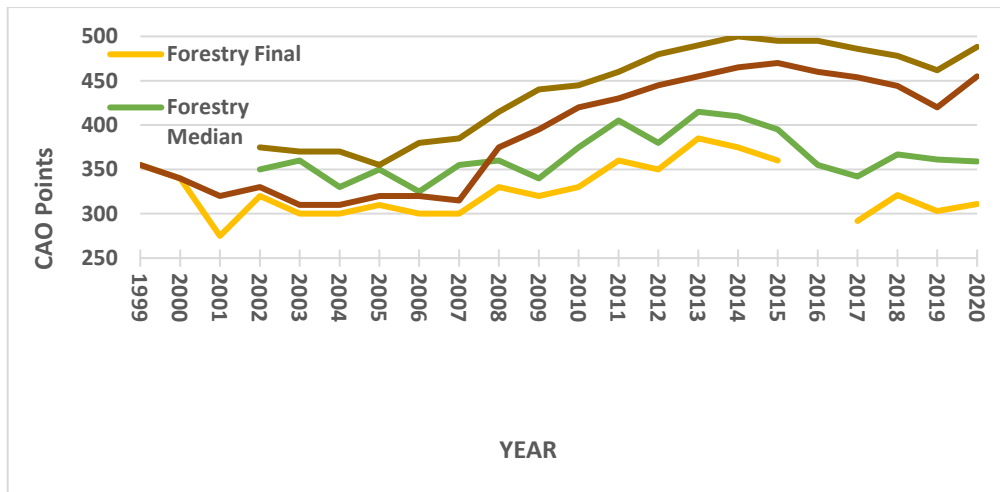


Figure 2: A comparison of CAO points required for general UCD Agricultural Science and the Forestry programme 1999 – 2020 (the ‘final’ CAO points refers to the points associated with offers made if all places on a programme are not allocated after the first round of ‘offers’). (source: cao.ie, accessed 14/04/21)

Why the lack of interest in Forestry programmes?

Given the rapid expansion of forestry in Ireland, one might have thought that there would be a demand for forestry education. It is not immediately clear why this is not the case although it has long been considered that the lack of visibility of forestry and the lack of awareness of what a forester does, has contributed to this. It is quite telling that in Ireland, the secondary school senior cycle Agricultural Science syllabus was renewed in 2017 and despite the fact that 11% of the land area is classified as forest, forestry is not specifically referenced as a land use.

During the final year of the UCD programme, Forestry students must complete a research project. One such project in 2018 investigated the awareness and perceptions of senior cycle secondary school students about forestry as a career choice. A survey of three schools found that 80% of respondents were not aware that forestry could be studied at third level in Ireland and most associated the role of a professional forester with the physical aspects of planting, harvesting and tending to forests (Maher, 2018). This misconception may well contribute to the ongoing poor level of applications by female students in particular.

Coupled with this, there is a somewhat negative perception of both, the type of forests and how they are managed; society in general would seem to prefer mixed native woodlands that are maintained in the landscape. The focus on the value of the natural

world, on trees as havens of biodiversity and as the ultimate ‘lungs of the world’ begins very early during primary education. The notion of removing trees is very often portrayed as a negative thing; perhaps our efforts to communicate the facts of well managed forests, the challenges of meeting SFM principles and the joy and necessity of wood and wood products, need to happen at a much earlier stage in formal education.

Since 2019, Forestry has been in the news for all the wrong reasons; there have been orchestrated appeals to licences for afforestation, road construction and harvesting and due to the unforeseen volume of appeals, there is now a serious logjam in issuing licences and the industry is at a ‘standstill’. This does little to attract entrants to forestry either in terms of afforestation or formal study.

It has also been reported more generally that the term ‘forestry’ implies an element of industry or production and that potential students now being environmentally aware are more drawn to ecology or nature-based programmes. Many forestry programmes internationally have amended their titles, and their content, to reflect this and it has been previously discussed at UCD.

Steps to address the graduate shortage

In recognition of the seriousness of the shortage of Forestry graduates, the regulatory authority, industry representatives, the third-level educational institutes, and professional forestry societies have come together under the umbrella title of ‘Forestry Careers Ireland’ (FCI) to develop an action programme to raise awareness of forestry as a career.

The first action was to provide a coherent and up-to-date offering on forestry as a career on the “careersportal.ie” internet page. This resource is widely used to support students in identifying careers choices and appropriate college programmes. Not only was accurate information about the Irish forest sector provided but also video and text testimonials, along with photographs, from a range of foresters. A presentation highlighting the extent of forestry, forest ownership and the positive role that forests can play in Irish land-use was made to the national conference of the representative body of Agricultural Science teachers. A prize was also sponsored for the best ‘forestry project’ in a national competition for secondary schools called ‘SciFest’ which aims to promote student engagement in STEMM (Science, Technology, Engineering, Mathematics, and Medicine) subjects.

The most ambitious initiative of FCI was the establishment of a Schools Ambassador programme. With funding secured from a government initiative to promote forestry, high quality print materials were developed and circulated to all secondary schools in the country (Figure 3).

The material introduces the scale of the forest sector and the range of opportunities that exist with a forestry qualification. An offer to have a professional forester make a presentation to Transition Year (TY) students was also included; TY is a year between the junior and senior cycles in secondary school and often has flexibility in the timetable and can therefore more easily facilitate school visits. Unfortunately, after only a few months of the programme, the global pandemic caused school closures and halted such visits.



Figure 3: Print material produced by FCI to promote forestry as a career.

Discussion

While feedback to FCI on the success of the Ambassador programme was only collected on an ad hoc basis, the initial findings seem to indicate that there has been a relatively poor level of uptake by schools, despite the enthusiasm and willingness of the Ambassadors. When the author sought comment from a TY co-ordinator (who had been an enthusiastic supporter of the programme), she replied that it is mostly likely too early for students to hear about career choices and that targeting Career Guidance counsellors during the senior cycle of secondary school and/or offering TY students a practical exposure to forestry could well yield better results. On foot of this, plans have been developed to field test a ‘forest based’ experience with TY students to conduct a multi-resource inventory and demonstrate how the information is used to predict timber volumes, plan for biodiversity management and calculate carbon stocks. It must be noted that the potential benefits of such initiatives are somewhat in

the future as TY students in 2021/22 will be applying for higher education courses commencing in 2024.

Forestry education in UCD is at a critical juncture – the loss of denominated entry for potential students may see a reduction in enrolments for the 2021/22 academic year. Conversely, this may have a positive impact on the forestry programme in that, with some time and effort, the impression of being a ‘low points’ course might be eroded. What remains to be seen is whether the university will continue to recognise the value of the forestry degree specialisation.

On a larger scale, the current licensing issues surrounding forest management need to be addressed as a matter of urgency if trust is to be restored in forestry as a viable land-use choice for landowners.

It is hoped that ongoing efforts to market forestry as the vibrant, challenging, rewarding career that it is, reach the intended targets and that the next generation of foresters become the custodians of a robust and sustainable forest resource and a thriving and diverse industry.

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