EDITORIAL

Forestry education that goes beyond the standard and unoriginal

When foresters ask me, as a university academic, about forestry education, they appear to be thinking predominately about bachelor, master’s and PhD programs that include ‘forestry’ or ‘forest science’ in their titles. In the course of these conversations, many foresters lament the demise of the four-year professional and ‘named’ forestry bachelor degrees in Australia, now that the Australian National University (ANU) and the University of Melbourne have dis-established their programs (although the Bachelor of Forest Science and Management continues at Southern Cross University (SCU)).

With the exception of the SCU’s Bachelor and Master of Forest Science and Management, and ANU’s Master of Forestry, no bachelor or master’s programs in Australia now include the words ‘forestry’ or ‘forest science’. Tertiary-level students can and still do enrol in bachelor and master’s programs with titles that include ‘environment’, ‘ecosystem’, ‘sustainability’ or ‘conservation’, in which they can craft programs comprising courses that focus on ‘forestry’. The ANU, for example, offers three master’s programs in its Fenner School of Environment and Society—‘Environment’, ‘Environmental Science’; and ‘Forestry’—and candidates in each of these can focus on forestry and include courses that cover essentials like silviculture, mensuration, forest policy and management. Nevertheless, there remains a perception that a forest focus is optional and all too easily diluted unless the program is specifically named. In the ANU master’s programs, only graduates in the Master of Forestry typically self-identify as foresters, and only those graduates are required to take forestry-oriented courses that are optional for the others.

‘Education’ is increasingly defined in wide-ranging terms: for example, the United Nations Educational, Scientific and Cultural Organization (UNESCO 2016, fig. 0.1, reproduced in Fig. 1) identifies ‘formal’, ‘non-formal’ and ‘informal’ forms of education, at multiple levels. A focus on named bachelor and master’s programs as ‘the’ level at which forestry education occurs misses many types and levels where the whole concept of forestry can be learned and practised. For example, there are formal apprenticeships, certificates and diplomas (at International Standard Classification of Education (ISCED) 3–4 or, at the graduate level, ISCED 6–7) in which participants focus on technical or other bounded aspects of forestry needed to keep the industry and profession viable. In 2019, the University of the Sunshine Coast and the University of Tasmania both proposed a number of new graduate certificates and diplomas to focus on wood science, engineering, harvesting and wood use. These levels of education could lead to graduates who support improved productivity, stronger economic growth and better service delivery in forest management and wood use (World Bank 2018).

A recent ANU Master of Environment graduate, Dollie Yao (whose thesis abstract appears in this issue), examined the potential for forestry education at ISCED level 3 (upper secondary) (Yao 2019). She concluded that, although there are numerous opportunities within the Australian core curriculum to incorporate forestry and, as a next step, to promote pro-forests behaviour that emphasises wise forest management and use, forests are rarely incorporated or are only represented indirectly in course curricula. Where forests are included, Yao found that they are typically portrayed in narrow or negative contexts (e.g. deforestation). She suggests that individual teachers, passionate and appropriately resourced, would be key to realising the pro-environment and pro-forests potential of Australian upper secondary education. In support of this, the ForestLearning initiative (http://forestlearning.edu.au/) is providing free pro-environment and pro-forestry material to support authorised school curricula.

Formal education also extends to Early Childhood (ISCED 0), and there appears to be a resurgence of efforts to ensure that early childhood is partly experienced ‘outdoors’. ‘Forest kindergartens’, ‘bush kinders’ and ‘nature schools’ are appearing in Australia, where 3–6-year-olds spend substantial, if not all their, learning time outside school buildings and in ‘nature’. Of course, trees feature in all these schools, from which students can move through the formal education system with the foundational knowledge that they are part of the environment and can learn and work in the forests.

As Figure 1 indicates, formal learning is only part of the education environment. Non-formal education is increasingly available via digital platforms, ranging from podcast series through to ‘massively open online courses’ (MOOCs), which may provide certificates of completion. Many of the MOOCs involve university input but do not necessarily meet ISCED standards. A number of available MOOCs mention ‘forest’, although the range is eclectic—from poetry and photography to ecology, sustainability and human history. Informal education can be even more varied and variable, ranging from media and outlets that have high editorial standards and production quality (e.g. BBC documentaries, digital platforms like The Conversation and high-quality print outlets) through to enthusiast and ‘conspiracy-theory’ opportunities like some YouTube and podcast series with agenda-based products. Non-formal and informal education cannot easily be monitored, and even truth-checking is limited, but unfortunately it now forms the majority of the ‘education’ that people receive on forestry and the environment. For example, it is much easier to make a dramatic and powerful newspaper headline or YouTube video on deforestation (and, by association, forestry) than to follow the cycles and nuances of

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1For a wider discussion of this issue in the context of Sustainable Development Goal 4, Quality education for all, see Chapter 4 in the recently published free-to-download book: Katila P, et al. (editors). 2019. Sustainable development goals— their impacts on forests and people. Cambridge (UK): IUFRO/Cambridge University Press.

2Search for ‘forest’ on https://theconversation.com/au webpage.
ecological succession and political and economic dynamics. Even the Australian television series, ‘Blinky Bill’ (produced for kindergarten-aged children), offers a very narrow view of the environment, labelling humans who worked in the forest as ‘tree stealers’.

In fact, all education has a ‘purpose’ and is driven with intent. The process is designed to change its human subjects and the way they think and act. H.L. Mencken (1880–1956) claimed in the early 1900s that the purpose of publicly funded education ‘… is not to spread enlightenment at all; it is simply to reduce as many individuals as possible to the same safe level, to breed a standard citizenry, to put down dissent and originality.’ If this appears a harsh or outdated characterisation, consider that the response by senior Australian Commonwealth Government ministers to a worldwide student strike against climate change appears to have been to tell students to stop thinking about global issues because politics is outside young people’s remit—according to Minister Canavan, ‘The best thing you learn about going to a protest is how to join the dole queue.’ This begs the question: does forestry education need to go beyond developing standard and unoriginal citizens?

Patrick Nykiel, a recent ANU Master of Forestry graduate (whose thesis abstract also appears in this issue), concluded in his study that forestry—and environmental management more generally—belongs to the class of ‘wicked problems’. Wicked problems involve social complexities and complex interactions and cannot be broken down into a series or hierarchy of subproblems for solution. Forest management may alternatively be described as ‘messy’ because it needs to work within the context of multiple interacting and interrelated problems, often with stakeholders who do not even agree with the framing of the problem. Wicked and messy problems are resistant to conventional methods of finding solutions, and new approaches have been evolving in recent decades. Nykiel (2019) argues that the best approach to dealing with the wicked and messy problems of forestry involves transdisciplinary thinking—the ability to examine your world view, including the practices of critical thinking, multiple perspectives, complexity and reflexivity. Transdisciplinary thinking integrates multiple worldviews to generate new insights and, importantly, communicates these to others without ignoring the complexity or stakeholder engagement. Summerfield and Keenan (2017) argue that the success of George Goyder (1826–1898) in developing forestry in South Australia was due to his ability to consider systems as a whole—‘across the boundaries of social, physical, economic and environmental categories’—and ‘effectively engaging stakeholders and citizens in understanding the relevant issues and in involving them in identifying possible solutions’. The curriculum for a forester interested in such transdisciplinary skills is substantially different to older, traditional syllabuses with its lists of course topics such as botany, ecology, silviculture, mensuration, utilisation, economics, management and policy (even though these subjects remain vitally important in forestry).

Discussion about forestry education often revolves around the definition of a ‘forester’. This may be a distraction, however, because the successful delivery of ‘forestry’ requires much more than a single person’s abilities, even one who is ‘jack of all trades and master of none’ (or only some; Blair & Olpadwala 1988). Teams of people are needed to deliver forestry well: maybe we need to re-envisage ‘forester’ as a collective noun for the teams of graduates from a range of ISCED levels who work in forests and elsewhere as specialists in the various arts of tending, conserving and wisely using forests. Some members of such teams, presumably from the higher ISCED levels, would need to be skilled in transdisciplinary skills to create and engage with the unique responses to the wicked and messy problems of forest science, conservation and management. But such a range of graduates and levels implies the need to increase the number of students entering the various aspects of forestry. Such an increase is apparently not happening, and shortages are being observed across the range, from technicians to professionals.

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Footnotes:

1. https://www.goodreads.com/quotes/435449-the-most-erroneous-assumption-is-to-the-effect-that-the.
2. https://www.abc.net.au/news/2018-11-30/australian-students-climate-change-protest-scott-morrison/10571168.
Other professions have also found themselves with decreasing numbers of students. Most recently, an emergency was declared in Australia on the shortage of teachers. Even dropping the standards for entry into teacher education, however, did little to increase the number of entrants; to the contrary, it harmed the status and respectability of the profession. The number of high-achiever enrolments in teaching courses in Australia fell by one-third in the past decade, worse than any other undergraduate field of study (Goss et al. 2019).

In a unique survey of high-achiever students on the attributes they consider important in choosing their program of study and future profession; Goss et al. (2019) found that, for these high-achieving students, the ability to make a difference, intellectual challenge, work-life balance and security of their professional choice all ranked higher than the potential for high earnings. Choosing a career they could be ‘proud of’ ranked only just below potential for high earnings. Goss et al. (2019) recommended a three-pronged approach to increasing student enrolments in the teaching profession: (1) provide relatively high-value scholarships (a minimum of AUD 10 000 cash); (2) develop better career pathways with obvious opportunities to progress through challenging ‘master’ or ‘specialist’ roles that allow those teachers to make a difference; and (3) promote the package and the image of teaching as a modern and important profession.

Forestry education could adopt these features. The University of British Columbia in Canada has already initiated the world’s most valuable forestry scholarship to raise the profile and high-achiever status of the profession. In Australasia, however, scholarships and prizes of hundreds or even a few thousand dollars for forestry-related activity often go unclaimed for want of applicants. Sponsors of such awards and scholarships are discouraged that ‘no one seems to want their money’, but I suspect high-achieving students might be looking for prestige as much as money, and the relatively small amount of money on offer does not achieve this. A small number of high-value, high-prestige scholarships may attract relatively more students into the profession than a large number of smaller scholarships.

The teaching profession has the advantage that almost everyone has experienced primary and secondary school and is likely to remember at least one favourite or influential teacher, or a teacher whom the student thought they could be better than. Thus, teaching is more likely to be seen as a feasible career option. Unfortunately, until ForestLearning and Forest Kindergarten initiatives are widespread, many potential forestry students might never realise that working in a forest is an option for them.

Current foresters outside the formal education system can promote pro-forestry behaviour through non-formal and informal approaches. Writing about forestry in the old and new media, not just as a reaction or defence against critics of forestry, is a form of education and can change the perception of readers. Foresters also have the advantage that their workplace is (often) beautiful—posting photographs of forests along with information on the forest goods and services produced in an area and the types of human activity involved in the production of these could be a very informative and attractive type of informal education.

Another positive is that most forestry graduates are quickly employed and tend to have relatively high starting salaries. Given the importance of forests in mitigating climate change, replacing environmentally poor building materials with wood and otherwise improving human health and biodiversity, it should be easy to promote forestry as a career that can make a difference and one of which practitioners can be proud. However, political uncertainty and an extensive volume of negative informal and non-formal educational material may suggest to people that the profession has no long-term future and may appear, therefore, to lack security. Nevertheless, familiarity with wicked and messy problems is an increasingly valuable skill, and forestry graduates should therefore have little problem working in other fields with such transdisciplinary needs.

Just as a forest is much more than the sum of its trees, forestry education is much more than the graduates of those ‘named’ ISCED 6+ forestry programs that include courses on ecology, silviculture, inventory and modelling, among others. Forestry education must integrate formal education from ISCED 0 to ISCED 8 and a wide range of non-formal and informal mechanisms. Forestry educators—at all levels and types of education and regardless of whether ‘forestry’ appears in their program titles—must go beyond the standard and unoriginal to produce foresters with the capacity to manage wicked problems in an increasingly complex and daunting world. For their part, foresters must consider themselves members of transdisciplinary teams that include people with technical and special skills in the art and science of tending, conserving and wisely using forested landscapes.

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