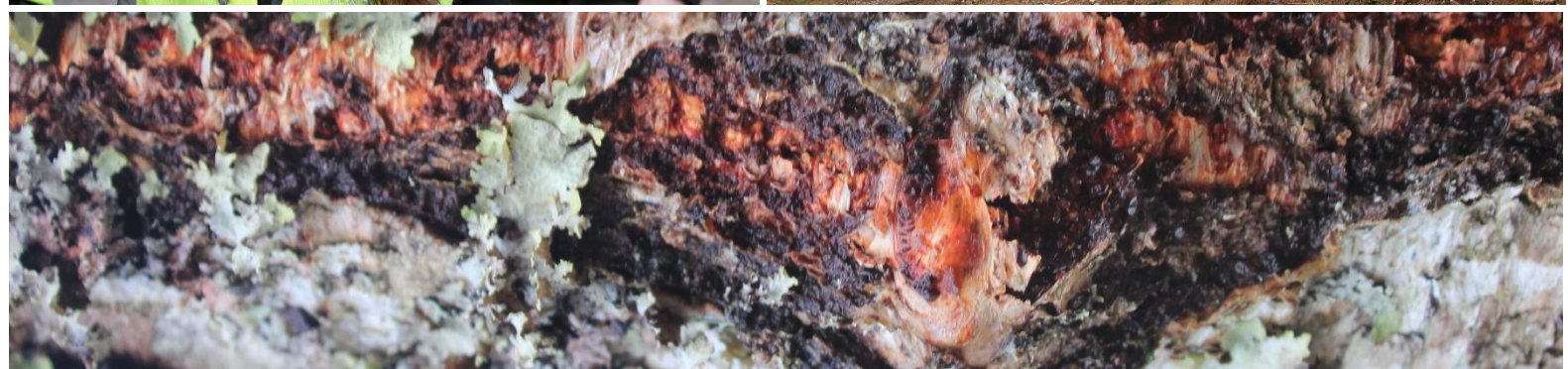


'Finding Forestry'



Creating a space that enables growth, communication and connection for the forestry sector in the UK



‘Finding Forestry’

Creating a space that enables growth communication and connection for the forestry sector in the UK (2022)

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Purpose of report

This report was prepared by Inverness College – University of the Highlands and Islands in partnership with Lantra and the Institute of Chartered Forester (ICF) at the request of Forestry Commission England and the project steering group. The initial remit of the project was described as a “*scoping study to explore a new UK forestry learning mechanism*”, it was commissioned in response an identified forestry sector skills crisis and the need to recruit and train more professional forestry workers to meet increasing government woodland creation targets over the next 5 years and beyond.

Summary

- A skills crisis is widely acknowledged in the forestry sector, and low numbers of recruits, declining student uptake and growth of industry are deepening this crisis. The skills crisis has been described as the forest sector’s biggest challenge since 1919 and the creation of the Forestry Commission to build up a strategic reserve of timber.
- Climate change, political agendas, woodland expansion targets and to a smaller extent the pandemic have highlighted the paramount importance of forestry and woodlands to society and the future green economy.
- It is widely recognised that finding information about forestry is difficult and that the information available is fragmented and not always accessible or intuitive to navigate. There is a large amount of quality resource but no instinctive first, trusted stop for people wanting to take the first steps into learning about forestry.
- In response to these factors 36 semi-structured interviews were conducted with forestry professionals, government employees, educators and associated industries. An online survey was launched for five weeks where 94 people responded, the majority of respondents were public and private forestry professionals then students.

Consensus saw the urgent need for a coordinating initiative but did not want to see the current structures and institutions to be overlooked. A mixed group of representatives was the preferred option to lead the initiative followed closely by a new independent team linked to the sector. Schools curriculum engagement was identified as highly important, as was being able to identify appropriate qualifications, education opportunities and clear and expansive career paths

- A range of platforms and organisations were assessed to explore effective structures, tools and awareness raising techniques to inform the new forestry learning space/mechanism. Identifying key approaches to raise awareness, employ useful and accessible tools and effective learning materials will help to hone the new platform. Additionally funding streams and governance structures were explored to examine ways forward for the 'Finding Forestry initiative'.
- Major challenges were identified including: 1) one-dimensional perception of the industry (logging and lumberjacks), 2) remoteness from populations, 3) lack of marketing, 4) disconnected from youth and schools, 5) difficult to find information, 6) declining numbers of recruitment, and only a handful of training and education centres.
- Ways forward were identified:

Develop an outward facing industry that is skilled at communicating the complexity and beauty of the woodland landscape and also potential career paths:

- 1) create a cross-generational dynamic central digital space that coordinates resources for multi-generations, and use it to tell stories about the exciting roles and lifestyles forestry offers.
- 2) identifying, explaining and breaking down qualifications and training routes, by region whilst simultaneously building capacity of forestry and training delivery
- 5) emphasise that industry is crucial to these efforts, both in terms of collaboration and for the fostering of strong links between UK forestry education centres across the UK

- 6) create more opportunities for experiential learning about forestry and the supply chain
 - 7) flag points of entry for forestry into the schools' curriculum
 - 8) ensure there is more of a focus on young people with associated communication strategies
 - 9) showcase and support short courses packages,
 - 10) draw in significant resource from diverse sources.
- Five possible scenarios were proposed as single options, as an interlinked phased approach or a package of several of the options together to build capacity over time:

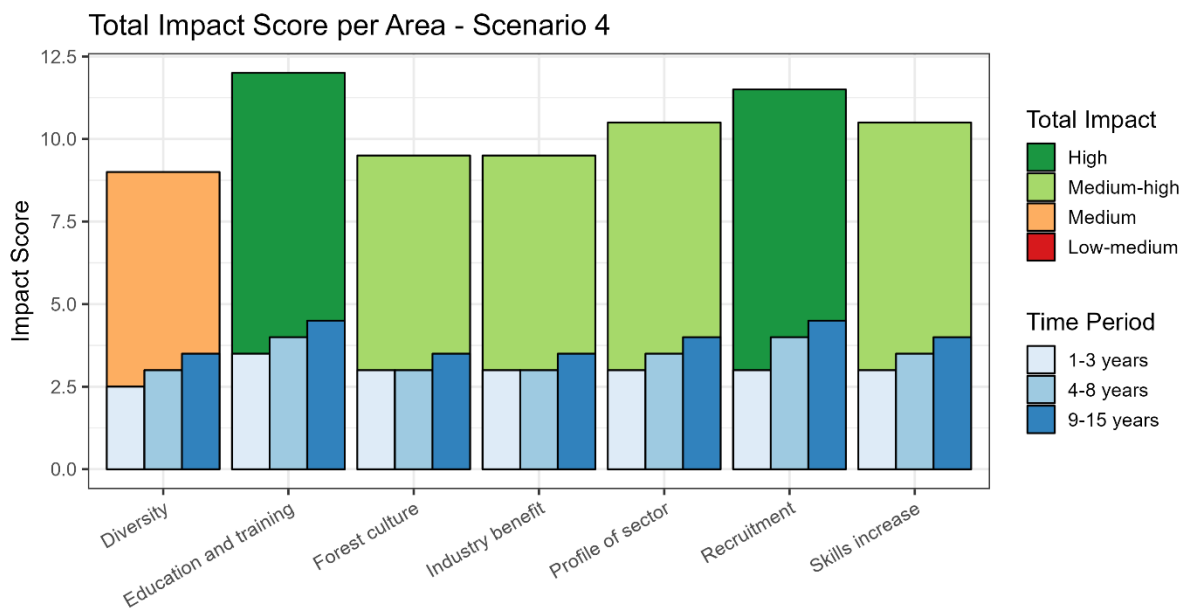
1) 'Finding Forestry' – Coordinating & showcasing

2) 'Branching out' – UK woodland network

3) 'Wood Wide Web' – UK Regional Forestry Hubs

4) 'Powering partnerships' – Forestry Skills and Education Academy

5) New UK Forestry Training Centre



- All scenarios were recognised as positively impacting the profile of forestry as a sector and the education, recruitment and diversity of the forestry workforce. Scenario 4: 'Powering partnerships – Forestry Skills and Education Academy' was the most widely high impacting scenario. The Skills Academy approach creates employer-led training facilities using pre-existing infrastructure across different regions for increased reach and keep centralised costs low and lean. Essentially creating opportunity and knowledge pathways for geographically spread populations.
- Governance of the new initiative was viewed as a complex question, but that it should not sit with current agencies or providers but instead have a single employed team with mixed skillsets suited to the challenge. It was also important for the initiative to have an advisory board with youth and diverse voices and cross cutting workstreams.
- Funding for the new initiative was viewed by most respondents as the responsibility of central UK government, as this need has been triggered by numerous drivers including increasing woodland creation, social and silvicultural complexity, decreasing space and rising costs of imports, loss of workers and reduction in university and college provision. Therefore, an associated investment in skills, training, education and careers is needed.
- In the forestry sector lack of consensus is a major barrier to momentum and meaningful action. It was hence also suggested that for change to happen, a structure does not require that 100% agreement should be established.
- Risk associated with these potential development scenarios included buy-in from central government and industry, and the long-term legacy (30 years and beyond), which is linked to sustainable funding and support. There was also a concern that if the selected forestry learning mechanism does not deliver effectively it would reflect badly on the sector, potentially undermining current institutions and providers rather than enhancing them.
- The forestry sector and its implications for agroforestry, construction, and wider integrated land use needs to be more strongly emphasised, with the aim of supporting

growth of the green economy. There is a need for a more fluid learning network across the UK educational landscape to ensure an enhanced student experience and institutions that are well-equipped to deliver these evolving experiences. There is a need to connect to and build capacity of small and medium enterprises (SMEs) to upskill, train and take on apprentices to ensure practical skills are passed on effectively and to 'seed' vocational learning in the areas that we need it most.

“An ounce of action is worth a ton of theory” (Ralph Waldo Emerson)

Without meaningful action, intervention or disturbing the status quo the response to the current and ongoing crises facing the forestry sector will only continue to the point where it is irreversible and damaging.

1. Introduction

The forestry sector in the UK is supported by a small number of educational and training institutions that offer forestry programmes over the four devolved nations in the UK. Over the past 30 to 40 years forestry has struggled to recruit students and new entrants, which it often associates with negative perceptions or misconceptions of the industry, and a lack of awareness of the roles and jobs on offer and the diversity of opportunity (Walmsley *et al.*, 2015). However, ongoing work and the will for change may be creating a new profile due to heightened awareness, the political importance of climate change and the urgent need to mitigate its impacts. Planting trees, sequestering carbon, enhancing ecosystem services are viewed as some of the most beneficial and most simple to implement (Scottish Government, 2019; UK CCC, 2019). In parallel, the new appreciation of woodland, trees and greenspaces that arose during the pandemic has further underlined the importance of these resources (Burnett *et al.*, 2021; Logan, Metzger and Hollingdale, 2021) creating a window of opportunity for forestry in the UK and worldwide. Forestry has the chance to establish itself as a key sector in the wider green and bioeconomies as the UK shifts between high to low carbon technologies and economies (HM Government, 2021).

A mismatch exists between the public appreciation of woodlands and trees, and the narrow understanding or misconception of forestry (timber production) and the role it plays for society beyond the stereotypes of planting and logging. A broader knowledge base would equip people to understand the difference between woodlands that are left unmanaged and those that are actively managed to produce multiple benefits (Gerard Buttoud *et al.*, 2011; Quine, Bailey and Watts, 2013). This persistent trend may influence the relatively low and inconsistent recruitment of students, year upon year into the training and education institutions despite the high success rate of graduates securing employment directly after and often during their studies.

Trepidation over meeting woodland creation targets is stimulating the UK and devolved governments to perform deep dives into the opportunities and impact of green jobs and more

explicitly forestry sector jobs to assess whether the predicted number of workers can meet the future sector needs and ultimately the government planting targets, which will result in both direct and indirect jobs created by this activity and new woodland resource.

1.1 Workforce and skills shortage

Recent reports from Scotland (Lantra, 2019), and England and Wales (Forestry Skills Forum, 2021) have further highlighted the historic skills shortage, within forestry, which has now been described as a skills crisis due to the massive numbers of workers, combined with attrition, required to fulfil government planting targets within the next five years. The UK is not alone in this trend - both European and North American countries have experienced a similar inability to recruit numbers required to meet industry needs (UNECE-FAO, 2020).

In Scotland, to assess the skills need, planting targets were reversed engineered into person hours for different forestry roles directly responsible for planting, managing, harvesting and processing the timber. Due to the scope of these reports, they only cover the core skills required to meet the planting targets in the current decade and do not account for the creation and growth of wider forestry professional roles within the industry and associated areas. The overall workforce uplift predicted between 2017-27 was 32%, rising to 52% with attrition and 72% accounting for retirement. In Wales the overall uplift predicted for 2030 was 63% and in England 86% including attrition.

These reports highlighted the need to better market the forestry sector as a highly professional and skilled career that has diverse scope and futures, however provision of further education (FE) and traditional technical skills in this area are very limited and dispersed across the country with no centralisation or coordination.

1.2 Recruitment

The forestry education network across the UK typically has relatively low numbers of recruitment into FE and higher education (HE) forestry courses, many of which in England are arboriculture focussed. These tend to be rural colleges or rural campuses (a part of a central university) rather than large-centralised universities with one or two exceptions (Bangor and to some extent Birmingham). Recruitment is often unstable, changing from year to year and at times numbers are at the cusp of making the courses economically unfeasible (Leslie, Wilson and Starr, 2006; Walmsley *et al.*, 2015). These unpredictable numbers limit growth, development and investment. Typically, recruitment for forestry education comes through personal recommendations based on family knowledge, proximity to one of the Colleges or through word of mouth / connections with people working within the sector. This is to be expected due to forestry's low profile within the standard school curriculum. Awareness is hence dependent upon individuals 'coming across forestry' and so enquiries and applications are often dominated by career changers, shifters or those working in associated industries. However, recently applications through UCAS have been increasing indicating that there is more knowledge about forestry filtering through at school stages or that prospective students are searching for forestry education of their own volition (Pers comms, 2022). The question remains for each prospective candidate that searches for and finds forestry, how many do we lose due to fragmented information, less appealing web presence than other industries, as well as the limited amount, poor quality and inaccessibility of some material.

1.3 Forestry education

In the UK, forestry education is characterised by a range of institutions and colleges established to train foresters to create and manage the UK's woodlands initially for the strategic and economic timber supply. This both transitioned and extended to further objectives of recreational space, amenity, habitat conservation, biodiversity and ecosystem

services enhancement, well-being and community, carbon sequestration, as well as heritage and culture. The role of forestry and the nation's woodlands continues to expand, however expansion of education and training has not matched this growth, and neither to a certain extent has the public's knowledge and understanding. Since the 1990s forestry provided by the large traditional Forestry Schools such as Oxford and Edinburgh University had fallen away (Walmsley *et al.*, 2015). In recent years Aberdeen University and Newton Rigg have both ceased due to balancing declining numbers with economic feasibility of lower profile programmes. Courses range from FE National certificates/diplomas, Higher National certificates/, BSc and Honours, MSc and Masters by Research. Many of these courses have the option of placement or vocational years to provide industry experience before entering the workforce. In the last few years apprenticeships have become an important addition to the forestry education offering with schemes being adopted by Colleges, Universities and businesses and Non-Government Organisations (NGOs).

The following tables break down Higher education enrolment from 2014-2021 with a few data gaps; Further Education and Apprenticeships are not included in these statistics but provides an indicator of recruitment at one level.

Table 1 – Annual Higher Education recruitment numbers by country or region 2014 to 2022

	England	Wales	Scotland	NI	EU	NON-EU	Total
Forestry and arboriculture 2021/22	200 (44%)	25 (5%)	160 (35%)	5 (1%)	30 (7%)	35 (8%)	455
Forestry and arboriculture 2020/21	190 (45%)	20 (5%)	145 (35%)	5 (1%)	25 (6%)	35 (8%)	420
Forestry & arboriculture 2018/2019	175 (48%)	25 (7%)	115 (32%)	5 (1%)	25 (7%)	25 (7%)	365
Forestry & arboriculture 2017/2018	175 (43%)	25 (6%)	95 (23%)	5 (1%)	30 (7%)	70 (17%)	405
Forestry & arboriculture 2016/2017	210 (48%)	30 (7%)	95 (21%)	5 (1%)	30 (7%)	80 (18%)	445
Forestry & arboriculture 2015/2016	285 (55%)	30 (6%)	90 (17%)	5 (1%)	40 (8%)	75 (14%)	520
Forestry & arboriculture 2014/2015	330 (54%)	35 (6%)	95 (15%)	5 (1%)	65 (11%)	85 (14%)	615

Table 2 – Annual Higher Education recruitment numbers by age group 2012 to 2019 (2020-22 data was not available)

Subject/Age Group	20 and under	%	21-24	%	25-29	%	Over 30	%	Total
Forestry & arboriculture 2018/2019	55	15	85	23	90	25	140	38	365
Forestry & arboriculture 2017/2018	65	16	80	20	80	20	180	44	405
Forestry & arboriculture 2016/2017	55	12	100	22	100	22	195	44	445
Forestry & arboriculture 2015/2016	90	17	100	19	95	18	230	44	520
Forestry & arboriculture 2014/2015	100	16	95	15	135	22	285	46	615

Table 3 – Annual Higher Education recruitment numbers by gender 2014 to 2019 (2020-22 data was not available)

Subject-Male/female	Female	%	Male	%	Total
Forestry & arboriculture 2018/2019	90	25	280	77	365
Forestry & arboriculture 2017/2018	100	25	305	75	405
Forestry & arboriculture 2016/2017	95	21	350	79	445
Forestry & arboriculture 2015/2016	95	18	425	82	520
Forestry & arboriculture 2014/2015	120	20	500	81	615

Table 1 shows a general decline bottoming out at 2018/2019 then rising from 365 to 455 in two years whereas Table 2 demonstrates the dominance of enrolment for over 30's with a slight increase in younger age groups at different times in recent years. However, Table 3 shows the clear male/female divide and male dominance that has been steadily reducing since 2016. If 'Forestry and Arb' are in compared against other subject areas in 2020/21 this highlights the pattern of an undersubscribed and underestimated sector (HESA, 2022):

- Agriculture: 6,470

- Nursing: 52,295 (non-specific)
- Psychology: 107,985 (non-specific)
- Civil Engineering: 26,815
- Geography: 16,655
- Ecology and Environmental Biology: 7,525
- Environmental Sciences: 9,300

Although forestry training providers are geographically spread, they are mostly well connected with industry. Skills groups, though informal in structure and unfunded, are well established in both Scotland and England, and work to promote the sector, review qualifications and frameworks as required and contribute to sectoral reviews. They act for the good of the sector as a whole and provide a unifying voice for promoting learning, education and development in forestry¹. Their open mixed structure and goals orientated towards sharing knowledge, expertise, and resources to enhance skills and education is a structure, remit and group that the new forestry learning space (FLS) has to consider and at the very least work with collaboratively.

As for Further Education (FE) the consensus is that numbers in England have been plummeting in recent years, especially in regard to apprenticeship numbers for the Forest Operators framework averaging between 10-12 a year, whilst FE numbers in Scotland remain relatively consistent- averaging approximately 70 annually between 2014 and 2021 with a lowest recruitment of 55 in 2019/20 and highest of 95 in 2016/17. The chainsaw operator courses delivered by colleges lost a lot of ground during the pandemic with numbers dropping due to a lack of access to campus facilities. One issue that may skew the statistics is the categorisation of forestry and arboriculture together which especially in England was felt to be mostly Arboriculture but this cannot be evidenced currently.

¹ Forestry Skills Forum Role and Remit

1.4 Aims and objectives

This piece of work was commissioned by Forestry Commission through the Nature Fund to address and explore the need in the forestry sector for the creation of a new learning mechanism to bridge the gap between education, training and the future demand for jobs to fulfil the government tree planting targets. These were the key aims of the study:

- Establish key barriers and challenges to developing and sustaining a relevant and accessible forestry learning mechanism
- Explore and identify key pathways and infrastructure to facilitate the development, design and support of a learning mechanism/space
- Develop alternative scenarios that describe and analyse a future learning mechanism and potential impact

For a novel solution to a long-established challenge to be effective, it is critical that we fully explore why previous attempts to solve the problem, both in forestry and in related sectors, have not yet resolved the challenge. At the same time, in the post-pandemic world that has become increasingly open to new ways of learning and working, there has never been a better time for a new mechanism, hub or space to finally address the current disconnect that persists between society and the industry.

2. Methodology

This scoping study adopts an explorative qualitative approach in order to capture a diversity of perspectives, experiences and knowledge across the forestry and associated land-based sectors in the UK. The study began with a project steering group stakeholder consultation that was comprised of representatives from various areas of forestry industry, government programmes, education, skills and training expertise who formed the majority of the

interviewees. Additional stakeholders were identified through the course of the study to increase the relevance and range of the study.

2.1 Exploring current models and approaches

This desk-based exercise explored, collated and examined a selection of current and relevant approaches to growing green careers, skills enhancement and raising awareness. These examples were mainly UK based but offered international examples that were particularly relevant, for example those that are addressing the same forestry sector challenges in their country as the UK. These were selected by performing key word searches in an internet browser using keywords: “Forestry”, “education”, “skills”, “training”, “careers”, “green jobs” in different orders to capture maximum variations. Additional information was captured from the interviews where respondents would often mention platforms or certain initiatives that could inform the study.

2.2 Interviews

Over a period of two months each member of the steering group was interviewed along with recommended individuals from the wider sector, which amounted to 32 interview participants. The interviews lasted between 30-75 minutes, and 60 minutes on average, notes were taken by the researcher and the interview was recorded with the participant’s permission (only for the researcher’s reference). A semi-structured question topic guide (Appendix) was prepared that could ask the same general questions of each participant with room to explore unique perspectives and opinions. The guide covered the following topics:

- The broad mismatch between recruitment and the growing number of jobs
- Barriers to attracting people to forestry historically and currently
- Perception of forestry

- Education training and career provision
- Forestry education network and collaboration
- Forestry learning through school levels (primary and secondary)
- Relationship with other sectors
- The role of forestry learning to meet future industry and government demand
- The look, content, development, function and operation of a new UK forestry learning mechanism

After each interview the researcher strategically transcribed the interview and reflected on the notes taken during the interview to highlight main points and messages. The transcribed interviews were thematically analysed in three overarching categories:

- 1) Challenges and barriers
- 2) Ways forward – developing a new forestry learning space
- 3) Relevant outliers

Each of these categories contained several themes that emerged as the most dominant or common through the interviews. The relevant outliers were not necessarily dominant themes emerging from the interviews but held significant interest from a certain specialist perspective that would normally be omitted due to focus on common themes coming from generalist answers. Each theme has been presented in a single paragraph with 1 – 3 quotes to evidence the interpretation. The quotes remain anonymous for data protection purposes, each interview was provided with a participant consent form and are able to withdraw their data from the study at any time.

2.3 Online survey

An online survey was designed to engage a wider and more diverse stakeholder group including students using initial results from the first 26 interviews the survey to focus opinion on the shape, influence and legacy of the new forestry learning space. These questions were

workshopped with the internal research team and the steering group before launching online. The survey consisted of eight questions in total (one closed, four scale or ranking, and three open questions). An introductory statement and rationale were provided for the study including links to the most recent England and Wales/Scotland Skills reports (Lantra, 2019; Forestry Skills Forum, 2021) and privacy notice (Appendix). The survey was distributed through the networks and contacts of the steering group, and the majority of UK forestry schools and colleges, as well as being advertised on Twitter. Ranking questions were analysed by aggregating the scores (1-5; 1 being most important to 5 being least important) and assigning each individual value i.e. 1 – most important=5; 5 – least important=1, so the highest score would be the most significant answer, and lowest score the least significant answer (presented in Section 4.2 in various charts). Answers to the open questions and further information provided by respondents were thematically analysed in a similar way to the interview questions and linked to chart interpretation, in the event of detailed further responses.

2.4 Scenarios

Combining the results from platform review, interviews and online survey a framework was created by establishing the criteria required for a new forestry learning mechanism (content, structure, risks etc) and a range of options centred strongly identified themes during the analysis (such as regionality, lack of central digital presence, under-represented areas etc). This framework was then used to formulate the 5 scenarios as a starting point for discussion of piecemeal or holistic approaches that could address the current education, skills and learning issues.

2.5 Impact charts

In section 5 where the five scenarios for a new UK forestry learning space are presented, each scenario is accompanied by an 'Impact chart' these were designed to estimate the value and

influence of the scenarios which had been derived from the interviews and survey. Seven key impact categories were identified by the researcher:

- 1) Forestry culture
- 2) Industry benefit
- 3) Skills increase
- 4) Recruitment increase
- 5) Education and training
- 6) Diversity
- 7) Sector profile

Each of these categories were split into three time periods to separate out short-term and longer-term impact of the scenarios (1-3; 4-8; and 9-15 years) especially where significant behaviour and culture change could be required over decades. The steering group responses were then aggregated to represent an overall impact for each scenario. However further detail of the specific time period impact ranking can be found in the Appendix.

3.Current models and bridging initiatives

Although the combination of challenges for the UK forestry sector are unique, the work and insights provided by approaches taken by other sectors and international forestry may prove valuable, as often despite cultural and contextual differences the same challenges are often shared and revolve around the same key issues or wicked problems (Prager, Reed and and Scott, 2012; Duckett *et al.*, 2016).

This section does not mention every platform or initiative that provides and offers valuable resources, knowledge exchange and careers advice. It is however important to be aware of what is already available and from which organisation, such as the Institute of Chartered Foresters (ICF, 2022) who are launching a new 'work experience' page in Spring 2022. The

Royal Forestry Society (RFS) have a rich repository of online learning resources (RFS, 2022) and Forestry First in Wales provide targeted grants for skills training and development of educational material to address current gaps (Forestry First, 2022). Lantra (a UK-wide skills awarding body) is also increasing its focus on promoting forestry careers, extending the scope of activities already delivered in Scotland (Lantra, 2022). In Ireland, Focus Forestry explores the whole national forestry sector including research and education (Focus Forestry, 2022). The following organisations and models were identified as being of relevance to the proposal and have been themed by the identified aspects of the challenges forestry faces.

3.1 Raising awareness and challenges

The National Land Based College (UK)

The National Land Based College (UK) is an organisation/site that is described as, 'a onestop shop for land-based skills and careers' and hence provides a potential mechanism for increasing access to training and skills within the forestry context.

Landex is an associate site of the National Land Based Colleges and is again membership subscription that allows access to resources, showcasing of research and knowledge, as well as being recognised as a significant land-based training provider in the UK. There are 36 members in England, 3 members across Wales, Scotland and Northern Ireland (Landex, 2022).

The site functions through membership, so colleges must subscribe in order to benefit from the connection and profiling of their land-based qualifications quality assurance standard (NLBC, 2022).

Membership is optional, and not all chose to join, particularly the smaller independent training providers who might most benefit from membership. It also means that some of the core forestry universities in Scotland, England and Wales that offer mainly HE but also FE and

technical training are not mentioned. Some colleges are excluded from the network due to membership status, as is the smaller network of providers and trainers, as the focus is on a network of colleges.

Forestry and Arboriculture are clustered under the same category which would need to be expanded or separated out to represent the very different needs of the respective industries.

A few of the forestry links relating to the finding Apprenticeships are no longer in existence, and the ones that do work link directly to a Framework document which would be potentially intimidating or confusing for young or new entrants looking for accessible and simple guidance.

Finnish Forest Academy for decision-makers

As a powerhouse nation within the international forestry sector and a country deeply connected to their forests on multiple levels, they are naturally viewed as global forest experts within reasonable context. Finnish forestry approaches are often held as 'best practice'. Hence, although their forestry industries and skills structures are very different to that within the UK, it is still helpful to consider their approach to the delivery and support of skills development opportunities. They are in full agreement with this approach, to the extent that the Finnish Forest Academy provides services as a bridging and consulting entity to help other nations develop their own Academy or Forestry Forum. Their tagline of providing a "*unique approach to increasing dialogue around forests in society*" takes interested parties through a development process of a bespoke communication programme through:

1. the core team visiting Finland to understand the function, flow and impact of the Academy
2. a workshop with the core team to pull apart and understand the approach and process
3. engaging and identifying key stakeholders in the home country to form an advisory group

4. ending with the establishment of the Forestry Forum best suited for the client's unique context (Finnish Forest Association, 2022).

This presents an interesting option for the development of a new UK forestry space in respect to the process and learn lessons from the Finnish Forest Association. Although the UK has multiple forestry and skills communications organisations and established initiatives continuously emerging within the forestry sector, this could be a useful way to unite them together. The Forest Academy approach would come with an initial investment normally costing approximately €40,000 which covers purchase of a licence to operate within the home country and use of tools, methods, as well as materials and a manual that can be accompanied by skilled Academy facilitators. The Forest Academy has been implemented in Latvia, Tanzania, Costa and Mozambique with key lessons such as establishing long-term forums for dialogue exchange, and finding ways to engage and maintain relationships with high-level stakeholders.

The National Forest Programme Wales - Forestry First

In 2020, the Welsh Government announced the development of a National Forest for Wales to create new areas of woodland, and help to restore and maintain irreplaceable ancient woodland. Building a socio-economic woodland resource for Wales and future generations is the main driver for this work, which includes development of a recreational network, storing carbon and providing timber (Wales Gov, 2021). One of the six main objectives is to increase research, education and training. This place-based approach aims to help regions and the national network grow together; it is supported by core government funding for woodland creation, restoration and pursuit of multifunctionality alongside best practice to developing wider societal benefits.

Around £15 million has been invested overall, £5 million was allocated 2020-21, 2.1 million of which was set aside for community woodlands. Explicit investment into skills, training and education or any specific plan does not appear to be in place at this point in the programme,

although this may change further into the roll-out. It appears to be a very well-developed network and with a strong brand and identity which any UK forestry hub should consider carefully connecting with and perhaps replicating some of the approaches to create a UK forest network with paths and gold standard woodlands contributing to society whether a farm forest, urban forest, commercial forest or ancient woodland.

Borderlands – Forest Innovation Centre

The Borderlands Forestry Innovation Centre concept was developed as part of an Inclusive Growth Deal² that enhances activities and economies over five local authorities. A study identified key current priorities including supply chain efficiencies, carbon, wood products and management, and communications. Four to five million pounds of capital funding has been allocated with further stakeholder engagement and concept development planned for the future.

3.2 Addressing skills and training

National Skills Academies

In 2006, National Skills Academies (NSAs) were specifically developed in order to meet sector skills gaps, and create novel learning mechanisms of a form designed to meet the needs of a specific sector. The review of the NSAs highlights that no one size fits all and each sector had, and continues to have, a unique context and set of challenges. However, critical universal factors for financial sustainability have been identified (Johnson *et al.*, 2011) and include:

- keeping central costs low
- effective consultation and market research with employers to identify gaps in the market, timely development of products and services

² [Borderlands Site \(borderlandsgrowth.com\)](http://borderlandsgrowth.com)

- getting the provider offer right and actively facilitating employer-provider partnerships rather than relaying messages between the two
- diversification of funding streams

The NSAs advocates the use, support for and enhancement of existing infrastructure and provision which reduces the overall risk, supports the front loading of expenditure and allows the NSAs to focus on effective partnership building as well as removing the administrative onus from the employers and providers. This includes linking-up with local and regional colleges building a provider network that ranges from a few key institutions to more intricate networks that tap into smaller providers within a larger network of provision. Essentially the NSA supports and extends the reach of what already exists, rather than increasing provision.

Another key objective that influenced the evolution of the NSAs was that best and good practice would shape the design and development of learning, curricula, teaching, assessing and overall pedagogic response to the skills gaps. NSAs have focussed on addressing skills gaps through promotion of elearning and strengthening Apprenticeship partnerships but according to the 2011 evaluation have not been particularly innovative or creative (Johnson *et al.*, 2011). As the core skills gaps are addressed it is possible that a wider range of options might evolve.

Forest protection centre

'Forest Health' has been recognised as a priority by government and to support this a new 'Forest Protection Centre' has been developed. This collaborative platform or hub that forms a key part of the England Trees Action Plan (Defra, 2021), and is led by Forest Research and Kew Gardens aiming to bring together other areas of forest health expertise across the UK. The discovery and development stage is being run by a small project team combining the two organisations' staff and are operating under an established "*mission, vision, impact and outcomes to jointly create knowledge and research to enhance the resilience of trees and forests to current and future threats*" (Forest Research, 2022). As the work continues, they are

seeking collaboration with education institutes and organisation that hold forest health expertise and are currently developing an MSc jointly delivered by a UK-wide network. This highlights a specific key priority area for forestry tackling the biosecurity and integrity of the industry across the sector. This centre could be a complementary resource and network for a central forestry space to promote and collaborate closely with in the future.

Construction Industry Training Board (CITB)

The Construction Industry Training Board (CITB) supports the construction industry by helping to attract talent and support skills development across the UK. They are an executive, non-departmental public body sponsored by the government but in control of their own budget which is fed by an industry levy that aims to make sure that employers and the wider construction industry has the skilled workforce it needs. The levy is based upon the total wage bill of a company, this means employees on the payroll and Construction Industry Scheme (CIS) and subcontractors who make a CIS deduction. Current rates are 0.35% for PAYE and 1.25% for Net CIS which are reassessed annually. Small employers have reductions or exemptions depending on their level of wage bill, companies whose payroll is between £120-399K receive a 50% reduction and small business levy exemption is received between 80-120K (CITB, 2022). The CITB offers one option that is supported by an industry levy which would protect or exempt many of the small and micro-businesses in the forestry sector perhaps offering them an opt-in option. However, this potential levy could take the form of a voluntary levy that benefits the wider sector rather than steeping the condition in industry legislation. Such a measure would have to canvass the different sizes and types of businesses in the forestry sector to evaluate the receptiveness to a potential learning, education and skills levy.

3.3 Career pathways

Green workforce Canada

An initiative called “Think Forests” (which is currently an European Forest Institute tagline for raising awareness) was set-up by the National Canadian Forest Service to directly address the decline of forestry recruitment into colleges and universities across Canada resulting in a lack of qualified professionals to fill the jobs and support the vast sector that operates across the large numbers of the provenances. In 2011 the initiative was discontinued and subsumed into “Green workforce Canada” (Green workforce Canada, 2022) a vacancy matching service that also profiles the range of jobs, education and training centres, the current and future demand for different roles over the next five years, key forestry regions within the country and routes through qualifications for a chosen future role. Although job vacancies are currently a key service of the ICF and others within the UK, Green workforce Canada also have a unique tool in which a cost/standard of living comparison calculator highlights the affordability of forestry regions in comparison to urban areas. Property cost is the key indicator but further indicators could be used to make this more robust and representative across cost of living considerations. The site also has a Green Dream blog where young people in the industry write about and present their experiences of the industry.

TIAH (The Institute for Agriculture and Horticulture)

This new institute has been developed to address *“unprecedented challenges facing the Agriculture and Horticulture industry which will provide a forum for skills, careers and professionalism in agriculture and horticulture in England”*. Currently it is a three-year fixed funding programme from DEFRA to develop and initially run the institute with the aim to transition to a membership model such as the ICF to support medium to long-term sustainability (TIAH, 2021).

There are many parallels between the TIAH’s rationale, aims and future challenges which could merit a strong and close working relationship with a new forestry learning space. One key area where there is a current gap for forestry and an alignment for the TIAH is agroforestry, trees on farms, as well as parks and gardens that cover the ornamental areas shared by forestry and horticulture. Agroforestry has many different forms and functions that can be

adapted to local needs and showcase innovation and success stories that tap into the regenerative farming and climate friendly farming approaches.

TIAH is also a home for those in industry (England) seeking bespoke advice and practical tools to address skills shortages and life-long learning which will help farmers with the transition to new or shifting approaches that reflect new societal demands on the sector. The institute aims to be a first stop or gateway for individuals hoping to pursue a career or just find out more information about the sector's career opportunities.

Forest Europe – Green jobs and forest Education

The Forest Europe – growing life website has a green jobs and a forest education webpage. Similarly, to the UK, the organisation highlights the lack of qualified forest professionals to meet the growing supply of forestry green jobs. Additionally they recognise that a future workforce is required to adapt to climate change challenges and manage the forests for the increasing societal demand for forest ecosystem services (Forest Europe, 2022). They provide real-life examples from around the world which address key thematic issues two of which underpin skills, education and learning, 'Area 2 - Making the workforce in traditional forestry fit for purpose' and 'Area 5 - Recruiting, retraining and retaining the workforce of the future', which were developed under the report on '*Guidelines for the promotion of green jobs in forestry*' (UNECE-FAO, 2020). Case studies offer insights into various approaches to engaging the public with forestry, increasing the visibility and supporting knowledge exchange and management.

An associated page run by the International Forestry Student Association comes in the form of 'TreE-Learning – a piece of forestry education for all!' which offers a range of free resources including forestry topics, soft skills, events, job talks, free ebooks and external courses (IFSA, 2022). This work by multiple organisations and a range of pre-existing resource and examples are being channelled centrally through Forest Europe who host and coordinate these resources in an accessible and continually developing site. Clearly, this site is still relatively new and has

the flexibility for growth and continued adaptation building upon the five thematic areas. As well as providing a potential model for the UK, the Forest Europe resources could link to the UK forestry learning space offering a window into forestry opportunities, challenges and resources across Europe and globally. In addition, linking the UK forestry space would provide an avenue to further enhance the profile of forestry in the UK to perspective students across Europe despite the most recent political restrictions on work mobility.

The initiative rotates in different work themes through ministerial declarations, decisions and resolutions every four to five years when a different country in turn hosts and drives the work themes. Forest Europe is supported financially by contributions from the four core countries that constitute the General Coordinating committee, which in turn supports implementation of core activities and maintenance of a central secretariat. However, other signatory countries can voluntarily contribute to the process.

4. Results

4.1 Interviews

Interviews with a range of stakeholders including government, industry representatives, industry professionals, forestry educators and land use associated representatives were conducted over a space of six weeks. The following section will split the results into three subsections focusing on three themes: 1) challenges and barriers; 2) developing a forestry learning space; and 3) key outlying themes that capture relevant minor themes that might otherwise be overlooked.

4.1.1 Challenges and barriers

Perception of forestry *“is still one dimensional for most of the public [perception of chainsaws, cutting and monocultures]”* and although the services of forests have come to the

forefront in recent years the forestry sector has not had a similar upsurge in widespread understanding and engagement. Although UK forestry education institutions have experienced “*a healthy intake in 21/22*” whether this is the start of a longer-term trend or exists within the natural peaks and troughs is yet to be seen. One trend that is increasing in some of the institutions are “*the increased number of applications coming directly through UCAS*”, which may evidence greater awareness of forestry as a career path in secondary schools and wider society.

As many of the respondents communicated, the stereotypes of check-shirt lumberjacks and clear-felling monocultures persists as the dominant perspective. “*It’s still the same, most people still think forestry is a very low-brow job and basically cutting down trees, I hate having to explain all the time that it is so much more*” However, “*this appears to be changing through efforts of representative bodies stepping-up and expanding marketing campaigns*”. Continued efforts to demystify and expand what modern day and future forestry is and will be can only benefit the profile and reputation of the industry and the possibilities to be experienced as a career.

The same trend extends to the diversity and perceived geographical relevance of forestry, which underlines the narrow perception of what is actually considered forestry. Predominantly considered a white-male industry restricted to remote and rural areas, which for the most part excludes a significant population of the UK. This is especially prevalent in the skills gap areas, as the more practical training and work areas have even less diversity. “*We need to highlight that forestry is rewarding and welcoming industry with accessible routes where you will not feel isolated or unwelcome*”.

Disconnect during vital growth and decision years for children that untethers the learned experiences in the forest environment with the possibilities and attractiveness of careers on their route from 14 years onwards. “*It’s something that seems to be lost in those years from secondary and into late teens, it just isn’t present in the curriculum and in the minds of young people as viable and potential careers*”. Apprenticeships and the roll out of T-levels in England

are supposed to bridge this gap and embed forestry as option earlier-on within the school paths and trade routes. However, the majority of respondents involved with apprenticeships and the T-level (Technical-levels GSCE equivalents) roll-out acknowledge that there is a dispersed cohort and not enough being recruited despite some apprenticeship rolls attracting a high number of applications which can have the tendency *“to be too competitive for young entrants as candidates with greater work, professional experience and skills can overshadow the younger entrants with little chance to gain that experience or skills”*. Hence, *“routes into apprenticeships and T-levels are few and far between, across England and the UK, these qualifications will not be available in many areas of the country and may be too far away from where most young people live”* creating a barrier to undertaking these qualifications. This is doubly relevant as apprenticeship are place-based learning models and would therefore restrict who could apply. Shared apprenticeships are also difficult, as geography limits those who could attend the rotation of work placements with different employers.

Lack of marketing and knowledge of forestry *“For decades the forestry sector has struggled to market itself and feels like an insular sector that many within the industry, perhaps the outgoing generation wants to keep secret and centred around traditional areas. However, coordination and sustained effort for marketing has generally been low and not particularly smart but that has been changing in the last few years”*. Many respondents and interviews echoed these thoughts, expressing concern that the lack of effective promotion impacts the uptake of education and training. Some suggested that if we are to change this, forestry needs to be better promoted as a ‘green sector’ one in which they can feel fulfilled through working. This is possibly twinned with the misconception that forestry requires low-level skills which in turn leads to less respect for higher level roles. *“In many countries in Europe and elsewhere in the world the profession of forester sits alongside that of a doctor or lawyer, and parents are happy with this choice whereas in UK, forestry will not be perceived as a professional and well-respected career as much, especially by parents, despite the career and job guarantee and security”*. Forestry is a diverse sector, which literally has something for everyone at every

level. However, the lay public are much more likely to encounter individuals at entry level or in a practical role, which might go some way to explain this perception. Those at the higher level (perhaps intentionally) don't tend to have as many interactions with the general public. This trend may be on the turn as the emergence of the green economy, the climate crisis and leading a more active and nature-immersed lifestyle at the forefront of people's minds, foresters are becoming more known professionals that help the environment.

“Closeness to forests is fundamentally lacking, understanding of how a forest system works and why management intervention is required and what is sustainable behaviour is mostly absent in the UK but in eastern Europe and elsewhere foraging and wider use of these environments as well as the family forestry phenomenon creates an entirely different culture”.

The public's distant relationship with forests, woodlands and trees in the UK, means a lack of knowledge is being passed down from generation to generation and impacts our societies' understanding of forestry and awareness of its work and profession. By contrast many EU populations have settled in the UK including immigrants and refugees bring a closer relationship with their environment which is passed down from generation to generation sustaining knowledge, skills and vibrant culture (Balázsi *et al.*, 2019). Forestry is gaining attention through the widely publicised (and celebrated) woodland creation targets due in part to their carbon sequestration role. However, this also has the danger of painting forestry as purely a vehicle for carbon uptake and storage (Warren and McFadyen, 2010), therefore awareness and knowledge needs to be embedded deeper within public life to have a lasting cultural impact.

Remote from centres of populations *“Forestry needs to find its way into towns and cities, explicitly showcasing its knowledge and impact of everything in daily life, the urban forest and street trees need to be organically included within the remit and understanding of the forestry sector, resources and career pathways”.* Practical Forestry training centres are in the main disconnected from urban areas due to the natural requirement for them to be close to a significant forest space and associated employers. The rural nature of most forestry jobs and

the locations of training centres and colleges was highlighted as a limiting factor in terms of access for many people whether geographically, economically or mentally.

Any new forestry learning space or mechanism will, at least in part, need to address this issue of connection, limited centres and remoteness, if numbers are going to increase and more diverse recruitment base is going to be achieved. *“There is no getting around it most people do not realise there are education centres for forestry and they tend to be remote to 99% of the UK population in areas that may not attract urban dwellers, might be too expensive for kids leaving home who cannot afford tuition and accommodation, and that mental leap to relocate where there is little infrastructure can be difficult”.*

Searching and finding forestry *“Finding information about forestry, training and education is very difficult and when searching its very fragmented and not always that accessible, so many people could be lost at the first hurdle, and then again at the second”.* Access to the right guidance is a crucial first step in anyone’s journey to understanding what forestry is, what it does for society and the opportunities for an individual to pursue a career within the diverse sector. First contact - especially in the current climate of fast internet, instant gratification, social media and slick platforms - needs to be user-friendly, have a simple interface and look professional. Anything less than well-presented, fluid, dynamic and easy to understand content risks viewers looking elsewhere, especially if they are considering several options. *“There is quality content, and some resources being developed and on sites such as ICF, RFS, Lantra and others have stepped up their game in the last few years, but this needs to resonate with the wider public, and more resources, deeper resources need to be in use more widely and accessed by people from all backgrounds and levels”.* Therefore, any new forestry learning space or mechanism will have to be of a very high standard to encourage regular engagement that provides clarity on forestry and education.

Low numbers of recruits and interest within large regions of the UK *“Without willing companies to invest or offer places to potential apprentices and build a sustainable and economically viable cohort then it will not work, one or two within large regions of the UK will*

not cut it, gathering some at regional hubs more centrally may be a viable way but building up regional capacity should be high on the agenda". The aforementioned lack of recognisable regional contacts and champions for the forestry sector and education risks making the growth of the industry unsustainable. This has a knock-on effect on education and training, which becomes unfeasible due to small class cohorts, particularly in regions with little forestry activity. There was a strong consensus amongst the respondents that more widely distributed training and education opportunities are required to tap into and develop local expertise. *"You need that regional representation, the champions, ambassadors, as well as the key woodland resources as a self-discovery learning space – how this is done, I am not sure but there are people and resource in every region".*

Alongside the access to expertise and training, it was felt access to a networked infrastructure of woodland resources should be integrated into ongoing plans to grow forestry learning in the UK.

4.1.2 Ways forward – developing a forestry learning space

Outward facing industry that showcases a wider range and complexity of the forestry landscape and the potential career paths. *"Career pathways and a transparent industry for the public is key and the forestry space needs to help facilitate this function and communicate effectively".*

Cultivating a deeper understanding of the benefits, opportunities and quality of life that the sector offers is clearly important, whether it be for school leavers, families, career changers from urban environments or those in rural areas looking for a local work opportunity. 'Planting the seed' early within curriculum and in the career search process, by ensuring all understand the ecological cycles and services, the processes, the interlinked supply chain and diversity of products that forests provide needs to be a regular message in daily life. The recent campaign by CONFOR is a positive step in this direction but needs to be sustained over a

considerable time period which is expensive and might be beyond the reach of a relatively small membership organisation³.

The fundamental issue is that perception, knowledge with underlying understanding of forestry is very low and the range of qualifications and entry points is relatively unknown. There is information 'out there' but few people know to look, or are motivated to do so.

The stereotype of the burly lumberjack still persists and although this is slowly changing, it is not changing fast enough to respond effectively to the rapid upturn in activity. Climate change has gifted the forestry sector with an unprecedented window of opportunity to enhance and extend the reach of its message, and to more effectively channel and direct the wider public and people searching for a rewarding, diverse and secure career into the multiple pathways on offer.

A central, collated and engaging digital space that is dynamic for multi-generations *“It is so hard to find forestry and find a first port of call that gives you all the answers simply with the opportunity to dive deeper, and maybe connect to an instant chat, champion or education rep”.*

Clearly, when someone is interested in finding out more about forestry, to learn about the profession, the science, the people and the wonderful diverse world it supports, they should be able to find it easily. Although promotion of the sector is not the responsibility of any one body (unlike, for example CITB is for Construction), many organisations (such as Lantra, ICF and RFS) are currently operating within the space but their financial resources are limited. Without undermining the helpful information that is currently available and good work that is being carried out, there needs to be a central place that people can go to in order to access this information, that can be promoted widely by multiple partners, which presents a united front for the sector that will mitigate the fragmentation of information and knowledge.

³ Forestry GVA: £2.2 Billion (Forest Research, 2021). Workers: 30,000 (Forest Research, 2021); Agriculture GVA: £10.4 Billion (DEFRA, 2020). Workers: 472,000 (Statista, 2021); Construction GVA: £122 Billion (Office for National Statistics, 2021). Workers: 2.2 million (Statista, 2022).

This space would need to remain relevant, develop, grow and evolve, but could initially be a simple central site which provides links to the key pages of partners. It could then build incrementally, adapting to the identified needs and feedback. *“We cannot do this alone as the forestry sector and we cannot do it half-heartedly otherwise it will hurt the sector deeply and waste our opportunity – significant resource and the right people should be put behind this to mitigate any chance of failure”*. Experts with varied skillsets, knowledge and backgrounds are perhaps the best mix for developing the space including those external from the industry or associated land-based interests.

Tell stories about the dynamic and exciting roles that forestry offers *“There are so many exciting and dynamics jobs in forestry that no one knows about, we should show the technology like drones, modelling the climate, designing cutting-edge or timber technology, stuff that fires the imagination and makes people sit up and notice”*. Many of our respondents felt that we needed to better capture and fire-up people’s imagination changing the perception of what it means to work in forestry. Case studies and profiles on the range of potential roles open to perspective entrants should be available, along with career days and packages of material for guidance/career counsellors at secondary schools which could be used to promote forestry. Many of these are either already available or in development, but symptomatic of the multiple partners involved in the promotion of forestry – many were not aware of what others were doing.

There is a clear need and want for the range of opportunity and breadth of forestry to be made more visible to the public, to help deepen the public’s understanding of the sector and its future growth. *“You need people that inspire other people with what they are doing, and people that say yes this is possible, and this is how you become qualified...we need to make people say, [yes that’s f-ing cool, I want to do that!]”*.

Dismantle/unravel the qualifications, training and education routes *“The qualifications and the different levels from country to country, what they mean for a person and how they navigate this towards education and a career path needs to be untangled and laid out clearly”*.

to provide potential entrants clarity and visual pathways of qualifications and matching jobs in the industry.

With different qualifications and funding structures in the devolved nations, the different routes and mechanisms can be confusing for those that work cross border. However, this has been acknowledged and work is underway, supported by the Forestry Skills Forum, to create more national resources (STEM Support pack, Induction Pack and Work Experience Support documents) that are cross border, linking in regional education and training providers/opportunities. The inclusion of application deadlines was recommended though might be more challenging to keep 'current'.

Other elements it was felt important to include when promoting courses are the costs of the qualifications (which is dependent on many factors), duration, whether there is inclusion of a vocational year, as well as living expenses in that region, and potential for work to support the student's skills development through either a full, part-time or distant learning study. *"It's a little bit of a minefield or no man's land trying to find forestry let alone navigating your way through all the potential paths and what's on offer in different places"*. A single well-signposted place to visit for questions would be ideal to avoid confusion.

Increase the impact of T-levels by employing a hybrid approach with some parts of the curriculum being fulfilled through online and remote learning which could link into the forest resource and champions/ambassadors within different localities, making the qualification versatile and not completely place-based and bound by a restricted geography. *"T-levels have the potential to bring increased new entrants into the industry but they need to be widely available across the country"*.

Regionally profile and build capacity of forestry and training delivery *"Having a lack of representation in many regions makes running programmes such as apprenticeships and technical tickets as unfeasible, it does not make sense and is unsustainable at current levels"*. Many respondents felt it was critical to expand the infrastructure of forestry education and

highlight the accessibility options by developing options or new approaches to forest education where there are none. Although it was acknowledged that this runs the risk of weakening the existing providers by increased (subsidised) provision.

Multiple respondents highlighted that forestry simply did not exist in some regions of the UK and training or education provision was remote from these areas as well as irregular and difficult to source.

Most respondents commented that regional representation should extend to both rural and urban areas to meaningfully engage and highlight the impact in areas with little forestry. *“we still have this disconnect with urban areas and the people who live there whether its lack of access to woodland resources or only thinking forestry is something that occurs outside of town and cities, and this is where the majority of the country lives, the sector needs to relate to the majority of the people”*.

Industry is crucial in supporting these efforts *“I think industry realise they have a part to play and seem very willing to step-up and support efforts that will benefit them as a company and the sector as a whole”*.

Although the Forestry Commission is by far the most ‘known’ of the forestry organisations, industry also has a clear role to play if they are to recruit the workforce they require and obtain the skills they need to sustain the sector and company growth. Therefore, enhancing recruitment, creating clear pathways for career progression, supporting continued professional development (CPD) and planning for succession in the industry is vital to meeting targets and managing the new resources across the UK. Many respondents supported the idea of industry taking an active part in both guiding the new forestry learning space and contributing financially to develop and grow the initiative. Furthermore, collective action from these companies could make a significant difference. *“I think they have a responsibility to help develop the next generation, maintain and grow best practice and provide opportunities for attracting new*

entrants – an annual contribution or levy could be one way of contributing skilled people's time".

Collaboration between training and education centres to create a stronger network of forestry education across the UK. *"To me it seems like a no-brainer, we are a small community, and competitors to some extent but I believe forestry education and training would be stronger, if we worked together and built support systems and cooperated at first in small areas with the view to creating more innovative education".* This idea and potential have been evident for a couple of decades, as staff from these institutions and other external agencies in the forestry sector have advocated for collaboration and strengthening of ties between the Forestry Schools, Colleges and associated land-based training institutions in each of the devolved nations. It is likely however, that the reason no formal agreements between institutions have been put in place to date, is that such collaborations within the majority of curriculum areas would not make commercial sense. Some encouragement and explanation of the potential benefits would hence be required at the senior management level.

Forestry educators from the majority of institutions in the UK agreed that creating a network is an exciting prospect that they would support and commit to developing a long-term vision. In some instances, the sharing of resources and qualifications has been suggested from staff along with expertise, modules and even a national networking of their degree modules running in a way similar to an Erasmus agreement which could further enhance place-based learning through a landscape network of woodland environments across the UK. Once agreements were in place, this could organically extend to the few institutions in the Republic of Ireland due to synergies and similar conditions and environments. However, BREXIT could make this a little more challenging.

Creating opportunity for experience and insight across the national estates and industry forest supply chain. *"We have the means to develop and expand education opportunities and raise the profile of forestry all around us, the woodland managed by the national estate, private landowners and community woodlands...and indeed the nurseries and*

connected processors of end products are knowledge exchange spaces and have the ability to capture the imagination, if done well and right”.

The full forest experience is very physical, and is the result of thousands, if not millions of years of ecological processes. There is a power in this narrative of a ‘living history’ though resources that ‘sell’ this effectively in local woodlands would require significant development but perhaps not as much as we might think. Apps already in existence such as Zepto⁴, which was developed in collaboration with Scottish Natural Heritage and supported by CivTech, aims to better connect people with nature and is already available.

Such technology could be used to delve beneath the surface of the forest and provide enhanced alternative access for those with mobility or health issues preventing them accessing these resources through traditional channels. *“The forest supply chain and the many moving parts, the people involved, the technology and journey is fairly impressive if we can incorporate learning and discovery alongside our infrastructure and peel back what is done to bring products to their homes – it could be amazing and change the cultural perception”.*

Focus on Young people’s ways of communication and finding out information, as well as adapting to communication developments for subsequent generations to come.

“This generation and all future generations will be effortlessly tapped into the fabric of social media, the sector needs to recognise this and invest in both the resource, infrastructure, influencers and skilled people to address this vital communications paradigm shift”.

Investment in content can be misdirected if too much time is spent on the wrong platform and developed/presented in the wrong way which could deter young people rather than draw them further *“to click to find out more”*. Facebook and Twitter are considered aging platforms whereas Instagram, TikTok, Clubhouse and perhaps others are currently relevant and with video focus these platforms are predisposed to capture and communicate attractive and

⁴ <https://zepto-production.azurewebsites.net/>

informative forestry content such as daily work, future jobs and education and forest or tree species profiles. Although unlikely to be the deciding factor in choosing a career, a steady feed of information and an engaging narrative might be enough to spark an interest in finding out more.

Regardless of the message it wants to communicate, the sector needs to be prepared for next gen social platforms, a specifically assembled team could be tasked to tackle this constantly changing environment and integrate more effectively into the emerging Metaverse. Identifying this mixed group including representatives not from the traditional sector will need to be done in advanced to optimise the chances of success.

Finding entry points for forestry in UK school's curriculum. It seems that social media engagement and investment could go hand-in-hand with addressing some of the curriculum challenges within schools to raise awareness of forestry and promote careers opportunities during in the crucial secondary school years.

“Schools require easy and accessible curriculum to plug into a range of subject areas, so that forestry and forestry related areas can be seen throughout their subjects and permeate through real-world, interactive, engaging and applicable learning-attached to local woodland resource case studies that inspire on a regular basis throughout their school experience”.

A new forestry learning mechanism or space could promote access to, facilitate and direct schools to resources and local woodlands in which to apply that knowledge. Taking the function further it could also facilitate multiple school events across large geographical regions to learn about the woodlands and forestry in their area, extending the excellent work of the RFS to a much larger scale and across broader curriculum areas. *“These resources need to be made accessible and transparent to teachers, careers advisors and linked into learning platforms and resource sites that teachers regularly use and pull material for meeting curriculum outcomes”.*

Short courses package feeding the industry ground-up expansion and supporting government targets *“It’s simply not enough people being trained for the current jobs and level of forestry let alone what is expected in the near future in line with increased woodland resource...we need well-equipped centres and place people can go locally from all round the UK”*. Many respondents felt more needed to be done to provide the technical skills and CPD to new entrants and career changers. If planting targets are to be realised and industry infrastructure put in place then a workforce with the appropriate technical skills such as planting, establishment, ground prep, harvesting operator, chainsaw operators, skylining, forwarder and haulage drivers need to be trained regularly. Many of the interview respondents highlighted that the industry is not set-up to deliver trained workers, therefore intervention is required.

A few respondents that had experience with those skills areas highlighted the effectiveness of former schemes that trained entrants and newly graduated forestry professionals over a period of a month or two on one site for training and passing their exams for their bundle of technical industry tickets (qualifications). *“This was in one place and the candidates would come out with a package of qualifications that would enable them to go straight into work and consolidate those skills straight away, it was a great model and helped the individual to learn with different people then be channelled straight back into industry to use the skills”*. However, progression and succession have to be built into this model, as previous experience shows that within a few years these workers may progress to more advanced positions or shift roles within the industry, therefore a continual cohort is required to sustain a growing industry. Due to the remote nature of the sites that would be needed for such training: *“On-site facilities, accommodation and catering, need to be subsidised by government and/or industry”*. The costs of the qualifications and training may be out of reach for many wishing to become qualified whether young or unable to make the economic trade-off. *“At the same time, there needs to be opportunities for those who have the training to benefit from upskilling too – or*

there is the risk of flooding the market with certificated but inexperienced competitors, who undercut and put at risk the existing workforce”.

Significant resource is required to bring us out of a cycle of continual skills reports. *“A core resource is required, central government funding, similar sustainable funding from lottery that supports sports development, industry paying it back or a hybrid is crucial to drive this effort provide security and time to connect – so that forestry can have impact for multiple generations”.* As student numbers continue to be unstable, generally low and historically in decline, and the industry is in a period of rapid growth, significant intervention is logical. Coupled with attrition, succession and retention issues, an immediate but carefully considered intervention is paramount. *“There have been a string of skills report highlighting the same or heightened issues year after year, I am glad that something is being done but this cannot be a flash in the pan, this needs to be the big push for forestry”.*

4.1.3 Interesting outlying perspectives

In this section interesting and relevant outlier perspectives are highlighted which can often be overlooked in thematic research.

Creating **flagship new forestry training centre** that provides a direct provision for the highest priority short courses to meet the skills gap, as well as championing emerging skills demand with an innovation space for developing cutting-edge technology and research which is supported by an associated network of resource. *“This is what is needed to help forestry get back on its feet and take a few leaps forward, the industry are up for this and are willing to support financially and through expertise – a trusted place of best practice and assured standards for training”.*

Connecting through demonstration sites in the cities – several respondents recommended bringing forestry to the cities through the timber used in building and other city infrastructure, as well as placing greater emphasis on the role of urban forests, botanic

gardens and fringe areas. It is important to highlighting the services, uses and protective functions that forestry, woodland and trees provide for urban areas. *“I never really thought about the cities as a place for forestry and demonstration due to the lack of large forests, as most people don’t but that one needs thinking but could have unprecedented impact”.*

UK forest agencies could have satellite officers or some sort of semi-permanent presence in key cities creating a stronger link to urban forestry, arboriculture and single tree management as an important part of the forestry sector.

Interactive forests for 21st century learning – beyond social media creating artificial reality forests and live streaming from real forests can be used for training and visiting different forests environments. Additionally, these tools could enhance opportunities for the less mobile to regularly access these environments connected to their local forest resource, as well as exploring further afield in more remote areas. *“We are talking big AI experience – big thinking, almost like Fortnite or online player games that people love and socialise online at the same time whether down the road or continents a part”.* However, others worried that this would be seen as a cheaper and easier alternative to taking classes to the forests and so overall they would be less likely to experience the benefits of a forest visit, less likely to see them as important and worth protecting, and less likely to consider a career in this area.

Young entrants should not be penalised or deterred from seeking out forestry due to lack of practical experience – *“I think prior experience and intimidation of other people’s knowledge early-on can push people away and out, losing people even before they get on the courses – there needs to be that assurance/promise from education institutions that they do not unfairly bias against no prior experience, as it’s very hard to get”.*

Meaningful work experience, which was mandatory during the training most of the current established forestry workforce, is still a requirement for many roles or opportunities, but is increasingly harder to gain, particularly for school leavers and career changers without family connections to the sector. This can create a barrier to recruitment and perception of a

candidate's ability to accessing forestry education and qualifications. Such barriers should be addressed in introductory qualifications allowing for flexibility of learning or different skillset strengths. Emphasising this and explaining how this will change once on the courses to prospective students could attract more entrants and higher quality candidates from diverse backgrounds rather than being deterred at an early hurdle by assuming or being given the impression that experience is crucial and that new entrants do not have to had grown up in a rural or forestry environment. Pre-apprenticeships and pre-college courses, such as the foundations course seen in some university science courses or in Arts programmes where foundation years are used to decide upon particular subject streams (fine art, textiles or photography).

Sawmilling standards and training to produce consistent quality products – *“Milling and processing especially beyond the large-scale private companies does not have any standards, qualifications or best practice in what is a highly skilled and potentially dangerous profession”*.

Opening of sawmills or some parts of it to the public for education and tourism seems to be an emerging option for diversification with benefits. However, equally if not more important is the need to identify great trainers and use them to train other trainers, as these people are key to developing new entrants and can make or break the industry. In order to produce consistent top quality sawn timber products standards are required and a framework for quality assurance is lacking and should be addressed, especially if the forestry sector wants to develop increased milling capacity around a more diverse woodland resource.

Consider simple barriers for people. *“There are many barriers stopping people, finance and changes with financial implications is a big one, education is becoming more expensive and seen as less value for money – forestry could counterpoint this trend”*. Travel, family, carer responsibilities, accessibility, short-term funding and loan models should be considered to diversify the suite of education and training loans, especially for those that face significant loans decades into their future. One model that could be considered is a green economy investment subsidy, through which student loans or short-term loans for training could be

reduced, partially paid or written off at a certain point when a particular number of years have been spent serving the green economy and public good. This is a successful model that has been used in North America where after ten years of public service students are rewarded by having their loan written off (Public Service Loan Forgiveness) which somewhat redresses the balance of lower salary in public service (Federal Student Aid, 2022).

Levies from emission payments and carbon credits from woodland projects *“I just think that the carbon and GHG markets will be huge, and forests are helping these, why can’t provision be made in these transactions, a sort of green tax or token system you see in supermarkets to support local projects”.*

Tapping into the current culture of Environmental and Social Governance (ESG) investment and company profiles could provide an emerging source of funding mechanism that was not present before, supporting and funding education and training in the wider sector creating a successional and resilient workforce of diverse professionals.

How we use and market imported timber alongside domestically produced timber.

“Recognising the role of non-native and non-home-grown timber is important as they support economies elsewhere and many businesses in the UK, and we need it and it is often a misrepresented part of the industry, as the inclination is to think not British or home grown, must be dodgy or we should not support it”.

As the second largest net importer of wood products in the world (Forest Research, 2021) the UK relies on a vast amount of imported timber from non-native species. This will remain an important composition of the UK forestry sector even if increased woodland expansion leads to a greater amount of domestically produced timber there may still be a shortfall. Profiling non-native timber species, the supply chain, certification and importance in supporting best practice and livelihoods abroad will highlight that forestry is an interconnected global sector with unique conditions and diversity of resources. Non-native timber is a key component of

sustainable timber for construction and other product area and needs to be acknowledged as a positive element of forestry in alignment with home grown timber.

Remain connected to international forestry *“International forestry is vital for British forestry historically, socially and for accessing students and greater expertise and approaches – it would be narrow-minded to ignore this area in a UK hub”*. As many practices and knowledge are slowly being integrated into UK practice and education links and collaborations with global forestry, the wealth of knowledge and experience, the rich history and current practice are important to informing the UK’s position in the global environment. Forestry education in the UK would also benefit from linking into and participating in some of the many forestry monitoring networks of forest plots and long-term data over multiple forest biomes and types. *“Connecting for reasons of trade, pest and diseases and hearing stories of similar but very different experiences would enrich the site”*.

Do not focus too much on core forestry skills *“I think it would be unfair to have a centre that would focus solely on short courses and core skills, not really demonstrating that larger understanding and complexity of forestry”*. Although tree planting and timber targets are understandably a priority, if they are the sole focus, this could do a disservice to the rest of the forestry sector inadvertently perpetuating the lumber jack stereotype that persists in the mindset of the wider public. Any forestry learning mechanism should consider the whole ambit of the forestry sector skills required for the diverse roles on offer to future foresters.

Enhanced industry (especially private) support is crucial for education and training *“thus far in either a structured or explicit way, therefore, it is naïve to think that they would do so now”*. The provision of work-based and vocational learning opportunities has in the main been offered by the Forestry Commission, Scottish Forestry, Natural Resources Wales and Forest Service Northern Ireland in the respective devolved nations. The graduates of such schemes have then traditionally been ‘poached’ by the private employers. *“This arrangement happened in Scotland for many years, at one stage being heavily supported by EU funding. Then when that was withdrawn, the number of apprenticeship opportunities in forestry*

suddenly plummeted. This is slowly recovering in Scotland thanks to recruitment by Forestry and Land Scotland. There is still a long way to go though, and I worry that because the number of apprentices in Scotland is still not enough, it is higher than the total in England, so they could be poached before we feel the benefit!".

As the largest employer and one of the few forestry organisations with HR department staff that can contribute to the extensive work of reviewing qualifications, they in turn have been the predominant voice in the creation of qualifications and training opportunities. The apprenticeships have recently been reviewed and updated in England however, and this process is about to start in Scotland, so it may be that more forestry companies will start to adopt the apprenticeship model.

Many of the larger forestry companies have established their own in-house provision, training, graduate programmes and CPD. Cambria College currently delivers a Tilhill Diploma in Forestry and Woodland Management creating a forestry professional that is industry-ready and has all the technical, business and people skills required to hit the ground running, and be valuable industry assets, fit for purpose. Use of machinery, company resource, staff and woodlands are all made available to the students through this course, the benefit being that the course can be tailored to company needs, the negative being that sometimes core funding cannot be used to subsidise such schemes.

Company specific training is an alternative model to explicitly finance the forestry learning space but company sponsorship could be duplicated across the UK education providers to increase the quantity of industry-ready graduates across geographical areas, and would support current institutions by reducing the financial strain of delivery and resourcing. *"professional and resource support in areas that could use it to enhance learning and develop the current schools would be most welcome"*. However, a balance would need to be struck between industry sponsored training and a wider and more explorative curriculum experience.

Small woods management require incredibly diverse skillsets which cannot retain employees due to the demanding role and large skillset required to tackle multifunctional forestry and diverse stakeholders. However, the salary associated with work in this area is viewed as uncompetitive with other opportunities in the forestry sector and beyond. Additional benefits need to be built in to retain valuable staff and not suffer from repeated drift due to lack of sustainability and rapid turnover of the roles. This could also be indicative of the more modern forestry role and emerging landscapes that need to be managed and could be an example of where the aforementioned 'Environmental Service' loan repayment model could be effective, or a subsidised programme of CPD/training/subsidised professional membership could be applied (e.g. free ICF and RFS membership).

The consequences of current ticket model and no standards for some areas needs to be highlighted and possibly changed. *"Perhaps the ticket culture has had its time 5 days of training is not enough, at least 21 days is needed, followed by logging hours and consolidation of these skills, then assessment – people may be against this due to cost but would beneficial for the industry".* The current system of mandatory training and updating was put in place with the aim to save lives and prevent injury as well as ensuring that a level of professionalism and skill was imparted to those being trained and working within the industry. The research has however identified some key narratives around training and standards expressing that technical training and standards are not high enough, if not absent, *"The Forest Industry Safety Accord has a mad system of committees which end up being a constant battle between professionals who want everyone to be at their level, and companies that don't want to have to pay for constant training and development. Of course, they never agree, the constant battles put many off engaging and as there is no money to develop or run the training anyway, nothing really changes"*. This is further compounded by the fact that *"this is one of the most dangerous industries in the country, and if we express standards through evidence of preventing deaths and injury, this is something that cannot be ignored... It's unacceptable that we allow this to continue"*.

4.2 Survey

The online survey was open for 5 weeks and was distributed through the combined networks of the project steering group. Ninety-four responses were received in total.

4.2.1 Survey respondents by role

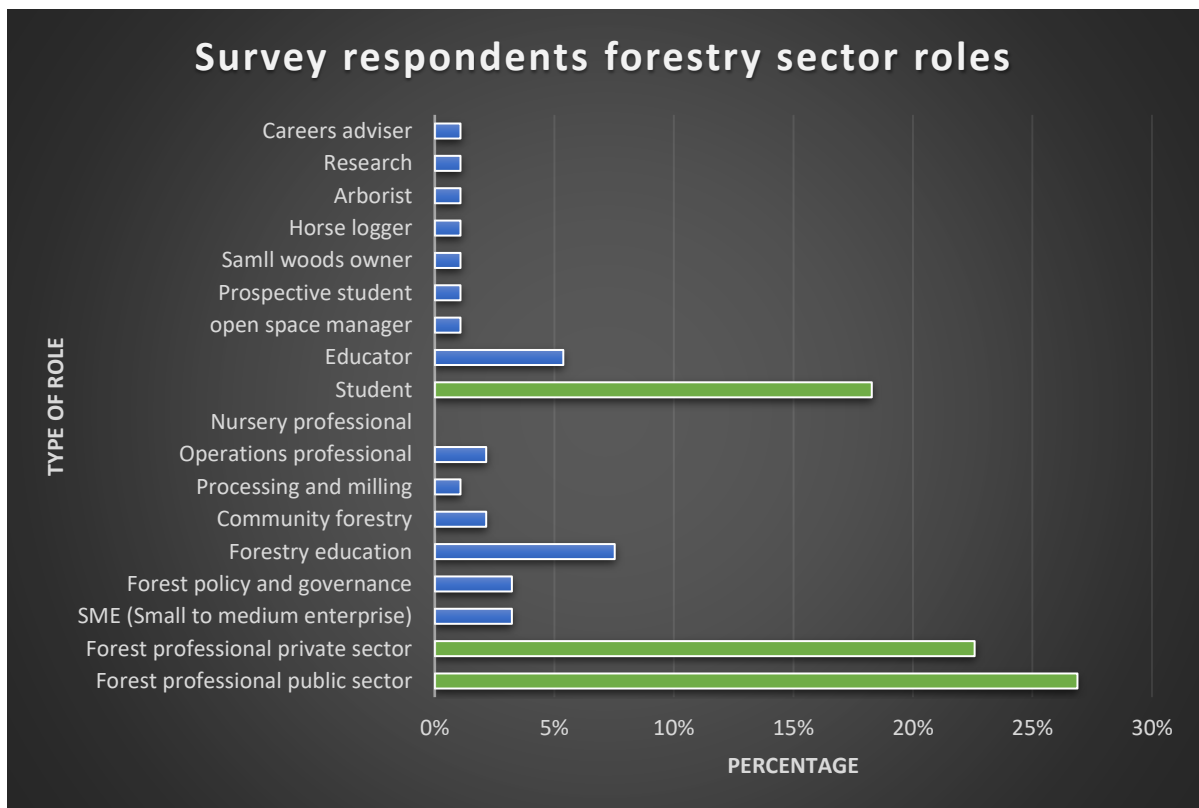


Figure 1 - Break down of respondents by forestry sector role

The top three respondent types (Figure 1) were 'forest professional public sector' (27%), 'Forest professional private sector' (23%), and 'Student' (18%). Educators either forestry or otherwise accounted for 14% of the respondents with outlier respondents spreading across associated professions including 'Horse logger' and 'Career advisor'.

4.2.2 Top priorities for forestry learning space

Respondents were asked to rank the top priorities for a new forestry learning space/mechanism for potential impact.

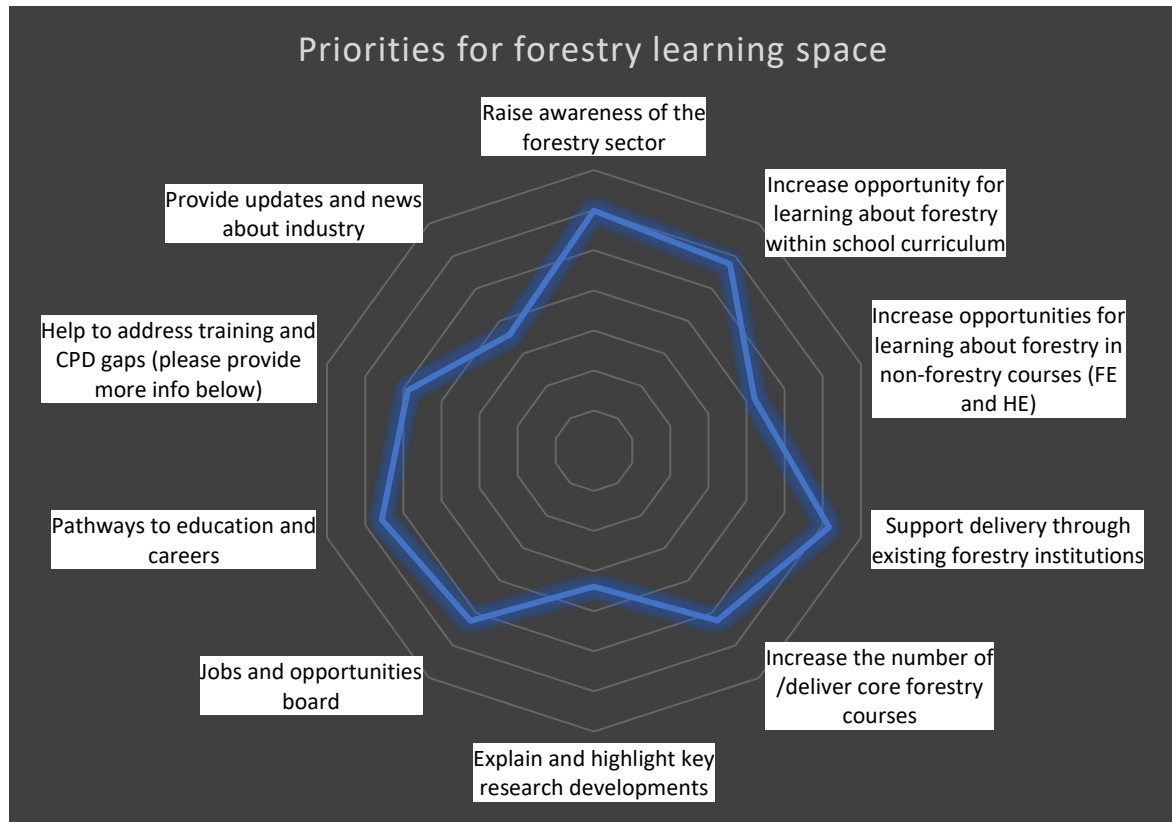


Figure 2 - Priorities for new UK forestry learning space/mechanism

The top priority identified in Figure 2 was to 'support delivery through existing forestry learning providers' (12.3%), followed by 'Raising awareness of the forestry sector' (12%) with 'increasing opportunities for learning within the school curriculum' (11.5%). 'Updates and news about the industry' was the lowest priority (6.8%). *"Raising awareness through a key schools programme and forestry material for the public are vital pathways for connecting with future foresters"*, other respondents identified *"making paths to training more present and clear for career changers and mature entrants, as well as new entrants"*, additionally *"better wages and less cost to gaining qualifications at all levels would attract people"*, and a number of

respondents highlighted the need for “an effective CPD recording system for all areas of the sector to recognise those firms and individuals investing time to employ best standards and learn”. There are numerous suggestions that these could be formalised and linked to current centres.

4.2.3 Services and support

Respondents were asked to rank the services and support that the new learning space should provide once established.

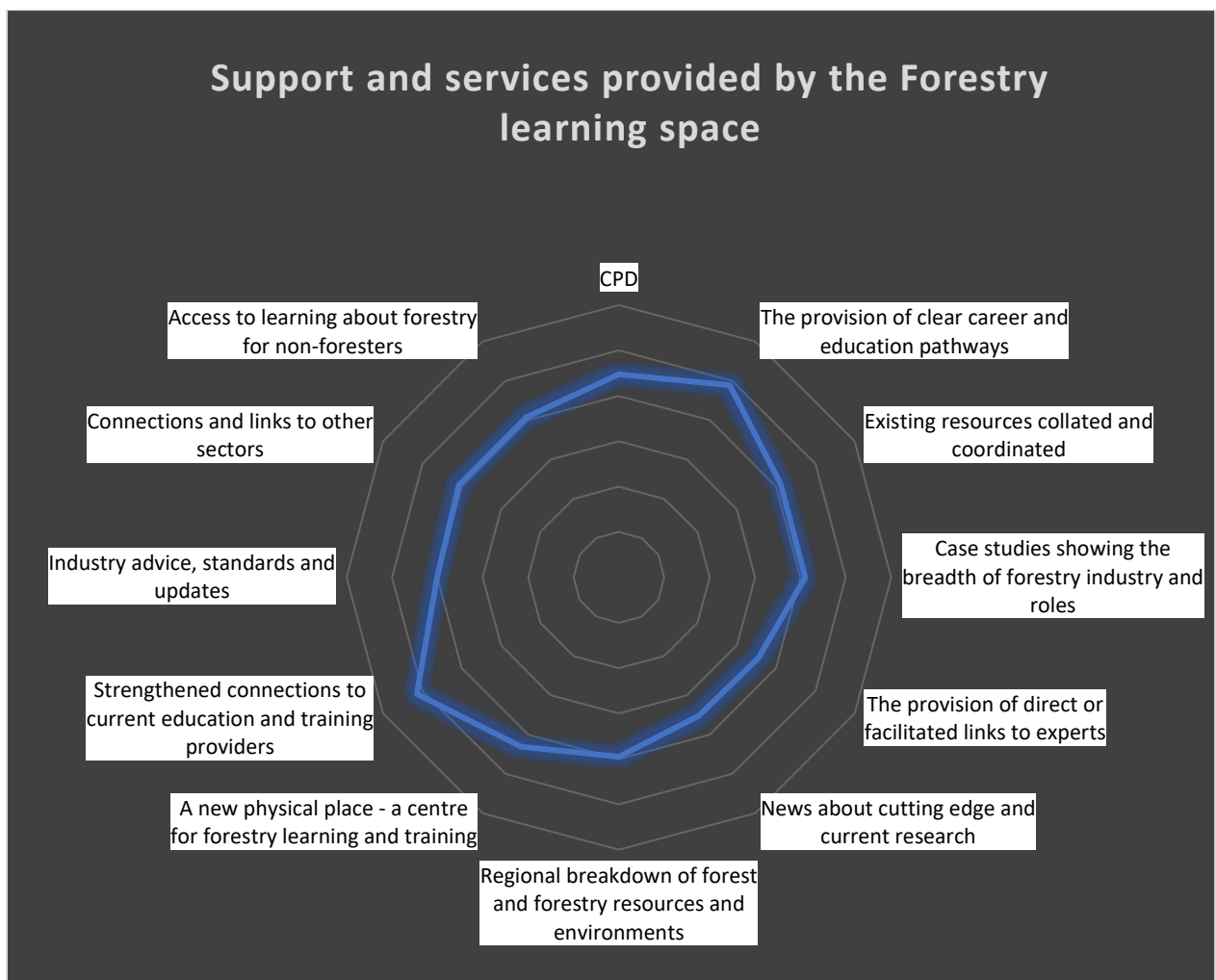


Figure 3 - Priority services and support for the new UK forestry learning space/mechanism

The top service and support identified in Figure 3 by respondents was ‘strengthened connections to current institutions and providers’ (10.3%) followed by the ‘clear and accessible pathways to education and forestry careers’ (9.8%) with ‘a new physical place – a centre for forestry learning and training’ (8.9%). The lowest ranked service was ‘news about cutting-edge research’ (7%). In spite of the strong support for the new centre a number of further comments emphasised for the need of different geographies and spatial areas to be represented, “*a network of "new physical places" needs to be considered which could be supported by private and public investment*”. The importance of people and knowledge exchange was highlighted including “*a social learning space for community of practitioners, informal to learn and share lessons*”, with the additional suggestion that it provides “*Coordination of a mentor / peer programme; Ambassador programme; Access to learning about people in forestry for foresters with little people/ community understanding... access to short / bitesize targeted online training modules for providers/ new entrants*”

4.2.4 Best organisational structure to develop and run the forestry learning space

Respondents ranked options for the most appropriate and effective organisational structure to develop and be responsible for the new forestry learning space.

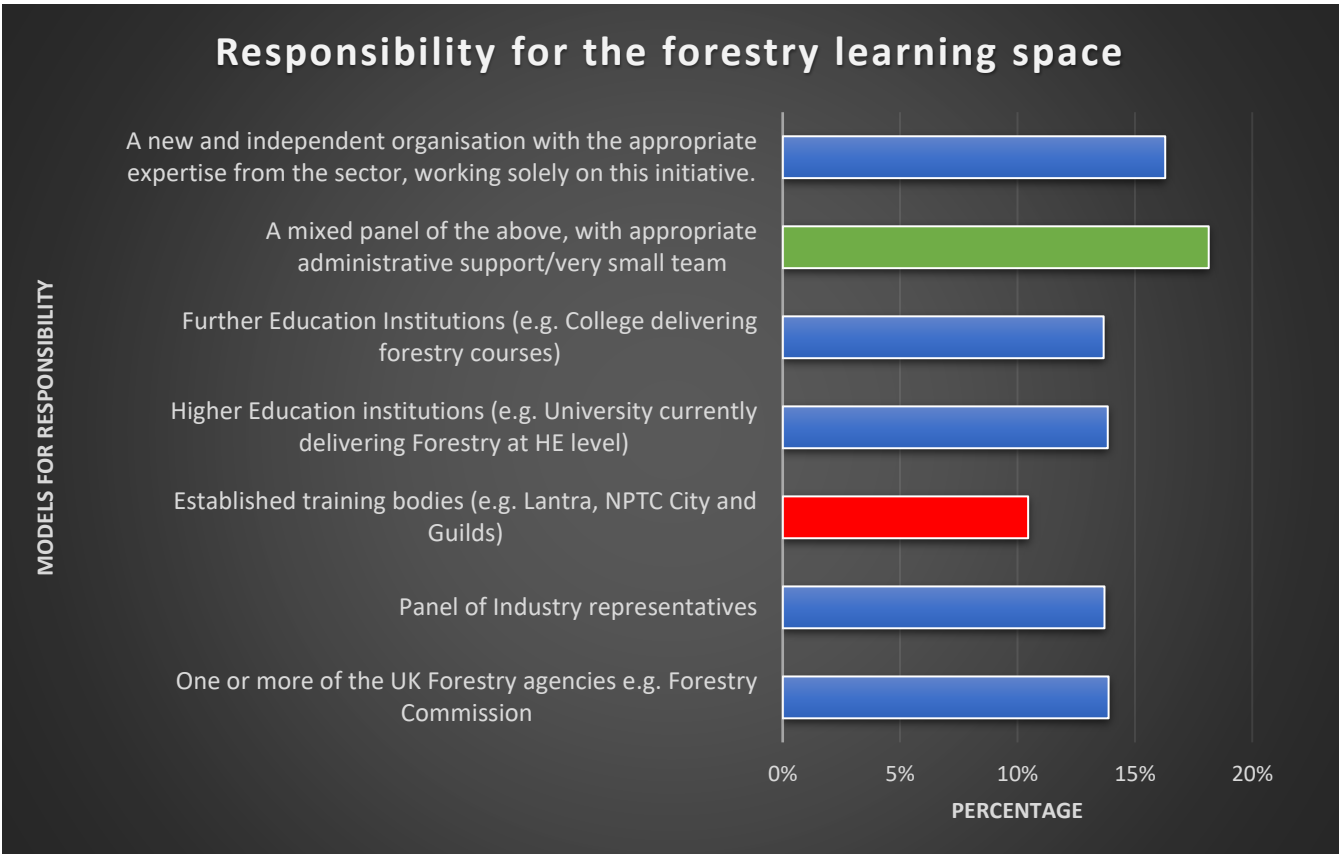


Figure 4 - Responsibility structure for the new UK forestry learning space/mechanism

‘A mixed panel of a range of representation headed up by a small independent team’ (18%) was deemed the most appropriate structure (Figure 4) followed by ‘a new independent organisation with appropriate expertise from the sector working solely on this initiative’ (16%). However, somewhat surprising the ‘established training bodies’ (10%) were seen as the least appropriate organisational structure, “as they do not provide what is currently needed”. In general the government or represented forestry agencies were acknowledged as having a role whereas further comment highlighted the need for “a fresh start”... “new organisation as the current system is a monopoly and if it was industry led it would be controlled by the large companies who would use it to their own advantage” and “A new and independent organisation” can act for its own best interests and not that of the industry”. Additionally, a wide collective of representation including “eco-businesses, carbon management, non-timber

products and ecosystem services” were highlighted, along with “*a strong governance structure that replicates effective and wide inclusion models*”. More geographically focussed, “*Northern Ireland needs consideration; the population cannot sustain a forestry course however, formal links should be made with the south of Ireland where similar challenges are felt*”, underlining the importance of regional, cultural and geographic relationships.

4.2.5 Raising more awareness, increasing recruitment and diversity

Respondents ranked the most effective ways to raise awareness, increase recruitment and diversity to improve the resilience of the sector.

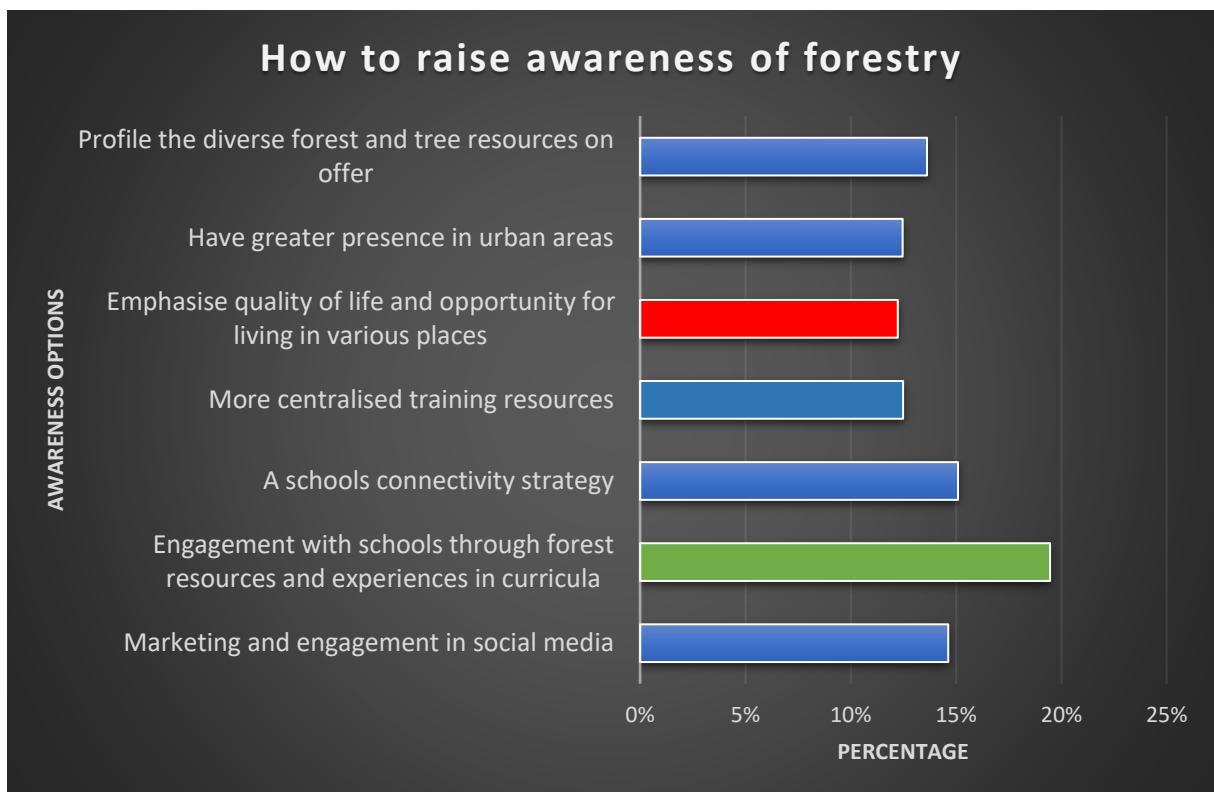


Figure 5 - Key activities for raising awareness for the forestry sector through the new UK forestry learning space/mechanism

The most effective way to raise awareness for the respondents was ‘Engagement with schools through forest resources and experiences in curricula’ (19%) (Figure 5), followed by ‘a schools connection strategy’ (15%), then by ‘Marketing and engagement in social media’ (14%). The

least effective way was 'emphasising the quality of life and opportunity for living in various places' (12%). Clearly the connection with schools is considered a significantly effective avenue which would also match with the use of marketing and social media due to the influence with society in general but more intuitively with the younger generations born into it. One further comment encouraged establishing "*a young person's panel to address knowledge, attitude and communications gap*". Another highlighted the role of current representative bodies, "*promotion of ICF in a more public environment, I was unaware for a long time of their existence, also highlight the UKFS to counter the superficial square block planting perception of forestry*". Also, "*short intensive courses are needed for career changers to build skills quickly on top of their prior skills*". One suggestion advocated the use of a "*recruitment person(s) to engage with schools programmes, raise awareness sustainably and pursue the right channels of communication on behalf of this new space*". Again, bringing the focus back on schools and bringing effective forestry education to "*all ages*".

4.2.6 New learning space – look, monitoring and metrics

The majority of respondents agreed that the learning space should be a representative UK forestry centre "*a onestop shop where people can find out all there is to know about forestry, careers, education, work, sustainability, standards*" and that it should be an "*Accessible welcoming space that clearly represents the broad spectrum of woodlands and forestry*". There was a clear message that the potential for the space was expansive and could meet many needs of the sector including, "*mentors, access to peers, forums, job shadowing, informal training and CPD*". Others expressed concern about moving away from practical forestry and visits to dominant remote learning, and continued to highlight the importance of "*Youth learning and forestry awareness*".

The opinions on monitoring and metrics to measure the success of the learning space were focussed mainly on "*increase in recruitment, number of new entrants into FE and HE, as well as the quality of applicants*", this also included "*tracking career changers and shifters*" but

beyond this *“Retention of workers beyond training is key for at least five years and further into the medium and longer-term careers”*. Additional metrics suggested were *“the amount of jobs in the sector, the success of planting schemes, number of apprenticeships and their geographical dispersal, amount of vacant jobs, and annual production of qualified individuals across the sector”*. Further to the simple number metrics respondents also emphasised the need to measure and recognise the increase in quality of *“woodlands, best practice, new entrants, satisfaction with careers, satisfaction of communities and access to forests”*. A general swell of forestry activity across the UK was suggested as a key metric, *“the number of providers and institutions across the UK educating and training more entrants”*, this was extended even further stating that a *“Opinion polls recording public perception and knowledge of forestry and woodland management”*. This would track the increase in public opinion, understanding and knowledge of the sector, profession and opportunities for training.

4.2.7 Coordination, governance and sustainability

On this question respondents were divided with around half trusting and indicating that *“Forestry Commission, ICF and CONFOR should be leading this initiative due to expertise, history, resources and representation”*. The other half were firmly on the side on *“a new independent body that has a mixed panel of experts from around the sector and education institutions would be most effective”*... *“Any co-ordination and governance must have links to all the key sector bodies BUT must also have the power to demand change”*. Another strong suggestion by approximately 30% of respondents was that *“current teaching, training, FE and HE education institutions”* are best placed to lead on the initiative. *“Whatever it is just make it accessible and affordable”*.

The sustainability of the learning space was widely acknowledged as a *“tricky and difficult”*, as *“significant and long-term resource will be required and our sector does not have large profits”*. The majority of respondents that made specific recommendations underlined the responsibility of the government, *“Government responsibility, industry design and hold government to*

account to meet what needs to be in place to support cover and quality of ecosystem services / natural capital of trees". Some emphasised the need for *"substantial increase in investment by private forestry sector including large companies and sawmilling companies"*. Minor suggestions included *"Training levy like construction sector"* and *"3-year development grant with formalisation of Forestry Skills Forum"*. Ultimate consensus from the respondents centred around this urgency and importance of the space, the crucial funding and sector-wide buy-in to back the process.

4.2.8 Further information

At the end of the survey respondents had free rein to impart any further information to benefit the study. The majority of responses reiterated the importance of the new space, including the aforementioned important elements, however others choose to highlight issues that were important to them, *"new space needs due diligence and industry needs to be held account for the failure of Newton Rigg"*, as well as *"respect, diversity and equality for all across the sector, and as a profession"*. Several respondents repeatedly highlighted the wage issue *"wages not high enough to attract people and in a male dominated profession it is not enough to cover childcare"*. This fed into further comments around the need for *"training grants rather than costly learns, reduction of training costs and financial aid"* to bolster those coming from low-economic positions, increase the ease of access and overcome the hesitation of pursuing a forestry career – *"financial incentive and competitive advantage is sorely needed"*.

The importance of local sector growth through *"more apprenticeships across the UK to attract local trainees to work in and strengthen the locality"* to support local businesses and entrepreneurship was mentioned. A few respondents echoed that a larger perceived system and cultural change is needed *"greater integration with other natural resource management professions. The old status of an industry is unlikely to be attractive to upcoming generations who seek to achieve a fundamental change to how things are run. Avoid hierarchical structures, create space for social learning, increase the adaptive capacity of the sector, shed*

the dinosaurs". A core aspect of the industry composition highlighted a disparity that continues to impact sector growth "*Remember that there are also many individual and small businesses that could contribute and don't necessarily have the funds/ organisation capacity behind them*".

5. Finding Forestry: a learning mechanism to bind them all

In this section several forest learning space/mechanism scenarios will be explored to offer a range of options for moving forward with recommended action plans. These are primarily informed by the interview and survey results discussed in earlier sections of this report, as well as the desk-based study on lessons learnt from other models being deployed or developed.

The main message from the study into whether we need new approaches to the delivery of learning and training in forestry has been a resolute "Yes!". There is both consensus and evidence that this is needed for the forestry sector in order to guarantee its future growth and to meet the demands of woodland creation and the rising contributions of the green economy. As for what this new model should look like most responded initially with "I don't know", but emphasised it was important that 'something should be done'. One respondent described the current situation as "forestry's biggest challenge since 1919" when the Commission was formed to meet the demand of timber production and build up a strategic reserve in case of another war (Forestry Commission, 2019). Now one hundred years later forestry is being forced to build a strategic reserve for very different and more complex or nuanced reasons including climate change impacts, biodiversity decline, ecosystem system services, recreation and human well-being. Admittedly, timber production is still a main driver, and this should rise in quantity and quality to increase home-grown timber products but the UK will always be a large net importer of wood products. However, we are facing monumental challenges for all these reasons and forestry now needs to build a much larger resource of qualified people.

In 1919, land was underutilised and population growth was increasing demand for timber, today we are in a very different situation and the skills required are more diverse. Therefore, it is likely that initially financial support will be required for the establishment of the new learning space/mechanism.

Government targets change (even during the creation of this report, for instance the change in the 2050 woodland cover targets in England increased from 14.5% to 17.5% equating to an extra 415,000 ha of woodland (DEFRA, 2022)), which are placing greater pressure on the industry. In order to live up to these targets a visible, attractive and successional skills-pathway needs to be put in place. For this to be effective in the longer term, it needs to be integrated into the policies that are establishing these targets, sustained for multiple decades with flexibility to adapt and change to new challenges.

A strong consensus was observed across all interview respondents and most survey respondents that an outward facing central gateway/portal or site is required to specifically represent the opportunity that forestry presents as a career and link people to the range of pathways on offer and the first point of contact. It would need to be the *“first thing people find when they search for Forestry”*.

Search engine optimization (SEO) is the process of improving the quality and quantity of website traffic to a website from search engines such as Google. SEO considers how search engines work, the computer-programmed algorithms that determine search engine behaviour, what people search for, the actual search terms or keywords typed into search engines, and which search engines are preferred by their targeted audience. SEO is performed because a website will receive more visitors from a search engine when websites rank higher on the search engine results page (SERP). Although this might seem unrelated to the creation of a new forestry ‘landing page’, it is included in the report because the ‘findability’ of a site can be determined by what the host’s pages are used for, and hence would need to be part of a well-designed and developed website that is closely linked to forestry and skills for the SEO to have the best chance of picking it up.

5.1 Scenarios

The following scenarios represent the wide-ranging recommendations and challenges identified during the research, each scenario can be viewed in isolation but can be an interlinked phased approach from 1 to 5 or a mix of several of options combined:

1) **'Finding Forestry' – accessible and interactive online forestry gateway**

The creation of a central, accessible and interactive digital gateway which directs users to the key information contained within the sites of other organisations with the view to addressing identified key gaps. [Finding Forestry will be used as an umbrella term for the new initiative].

2) **'Branching out' - UK woodland network**

The creation of a significant digital space with a longer-term vision to connect a wider audience with the forest resource and encouraging self-discovery and learning through bespoke associated tools.

3) **'Wood Wide Web' - UK Regional Forestry Hubs**

The expansion of regional infrastructure and local expertise, alongside increased capacity of current forestry institutions.

4) **Forestry Skills and Education Academy**

Following the model of National Skills Academies (NSAs) that developed a bespoke and tailored training approaches at different regional levels using existing infrastructure and expertise, which would aim to operate as a knowledge pathways in both urban and rural areas.

5) **New UK Forestry Training Centre**

New flagship centre for the delivery of core technical forestry training and CPD, with an associated forest and innovation space that would double as a destination to visit and learn about forestry.

Scenario 1 – ‘Finding Forestry’ - accessible and interactive online forestry gateway

Rationale:

Accessing knowledge and information about forestry is confusing and fragmented with too many separate pages. Needs to be a unified front selling forestry for those thinking about training or a career in forestry.

Core content:

New website showcasing range of forestry careers, typical salaries – emphasis on quality of life, pathways for education, providers education and training split into regional level detail, breakdown of qualifications and costs.

Structure:

First contact point for people interested in forestry as a career, industry and way of life. This should be the first hit that appears for forestry or forest education in search engines in the UK. Website with associated social media accounts, networked to education institutes, trainers and industry groups.

Team and governance:

Small multi-skilled and geographically dispersed supported by professional advisory board and UK skills groups.

Funding:

Central government funding for project implementation and sustainability – potentially supported by levy or membership.

Main risks:

- 1) Legacy – does not last beyond a few years
- 2) If inadequately executed, it will reflect badly on the industry
- 3) Risks duplicating and undermining existing or in-development material (e.g. RFS and Lantra)

Indicative cost and investment:

Low

Limitation – focusses only on one of the challenges facing the sector, that of attracting new entrants and presenting knowledge, and only through online medium.

Scenario 1 has the least risk associated in terms of outlay of resources and potential expense, however, as a response to the challenges outlined in this research, it could be accused of

lacking ambition and potentially running the risk of replicating the model of digital platforms that diminish in relevance and usefulness after the initial development (mentioned several times during interviews).

Therefore, if this option were to be pursued and for it to add value, it would perhaps be best implemented by creating a gradual/modular programme of change linked to milestones and goals of the Forestry Skills Forums and other key partners.

It is important to note that the proposed models are not mutually exclusive. As highlighted in Figure 12, key to initial and continued success will be the evidencing of impact and ensuring that it has been designed, tested, rolled-out and monitored in an effective manner.

A framework for capturing impact will need to be established early in the development phase and tracked through the duration of the programme into the future. This is particularly important as critical factors such as Search Engine Optimisation can be completely dependent on their host location. All the relevant metrics, analytics, criteria and indicators from both quantitative and qualitative sources should be reviewed before proceeding to subsequent developments.

This model would follow aspects of Forest Europe and Green jobs Canada contextualised for the UK market but would also link to current resource and platforms. Most importantly this would be a first port of call and area of contact for anyone wanting to “Find Forestry”.

Focusing on raising awareness of the forestry industry and opportunities, creating a careers pathways area that profiles jobs, match jobs with qualifications needed from school age upward, profiling education institutions, detangling the array of qualifications and what they mean from tickets to postgrad and professional qualifications. This should extend to volunteering, work experience and industry engagement opportunities especially by locality or region (again coordination and no duplication is key which can be avoided during a Discovery period). Additional space for teachers to use forestry in their curriculum would be valuable, especially if they could be linked to teaching and learning platforms already popularised. If

someone can click on a part of the UK and browse the opportunities with a regional rep who can be contacted for an informal chat. Enquiry or application forms should be simple, short and clear to follow. A dedicated youth and young people area could more easily direct and capture that interest, especially if this was co-developed and curated by youth and early-career representatives. Forest Europe explicitly links in the International Student Forestry Association providing a dedicated area which could capture interest using ICF and RFS student cohort.

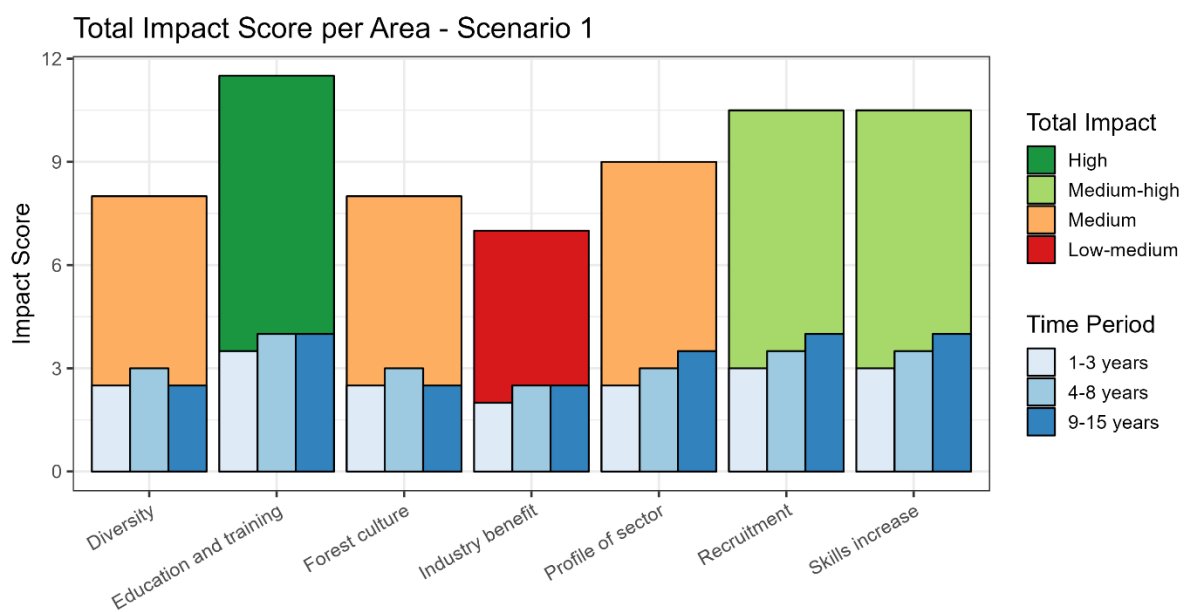


Figure 6 - Evaluated impact of scenario 1 over various categories and time periods (total impact is represented by the combined impact scores of the three time periods)

Risks

1. Digital platform is not developed to be accessible, slick and smart
2. Other organisations do not cooperate, support and invest in the platform
3. The time needed is not committed and right people not hired or involved
4. Capital and sustainable funding are not connected for right length of time and misjudged
5. Evaluating effectiveness of site is performed using limited metrics
6. Flow of content and continual updating needs strong partnership

Key actions:

- Form a team to drive the initiative
- Approve domain, scope and funding for Finding Forestry platform
- Develop site design and content

Scenario 2 – ‘Branching out’ – UK woodland network

Rationale:

Although virtual forestry activities can be engaging, nothing compares to being immersed in a real forest environment. To capture hearts and minds, physical space that can be visited is needed with online support to find, learn more and delve deeper. This model blends virtual and physical environments to enhance connection, experience and learning.

Extended content:

Core content from scenario 1 with further connection to the regional forest and forestry skills network, coordination of CPD and valuable learning resources such as Junior Forester and the STEM Ambassadors with an area for schools. Other planned development over three years which includes a range of champion woodlands demonstrating a range of structures, types, objectives and services to inspire and engage.

Structure:

First contact point for people interested in forestry as a career, industry and way of life. This should be the first hit that appears for forestry or forest education in search engines in the UK. Include additional learning resources and further tools over time. Website with associated social media accounts, networked to education institutes, trainers and industry groups. Events page with interactive map – “What is happening near me”.

Team and governance:

Small multi-skilled team supported by professional advisory board and UK skills groups.

Funding:

Central government funding for project implementation and sustainability – potentially supported by levy or membership.

Main risks:

- 1) Repeating and duplicating work
- 2) Development drift
- 3) Inadequately executed – reflecting badly on the industry

Indicative cost and investment:

Low medium

This scenario extends the gateway idea and connects to physical woodland resource around the UK, which could be identified on a regional level with each region offering up examples of:

- multifunctional forestry
- different types and structures of woodland
- demonstrating the diversity or uniqueness of certain woodlands
- recreation and well-being woodlands
- urban forests
- key species and timber that will be set against certain criteria

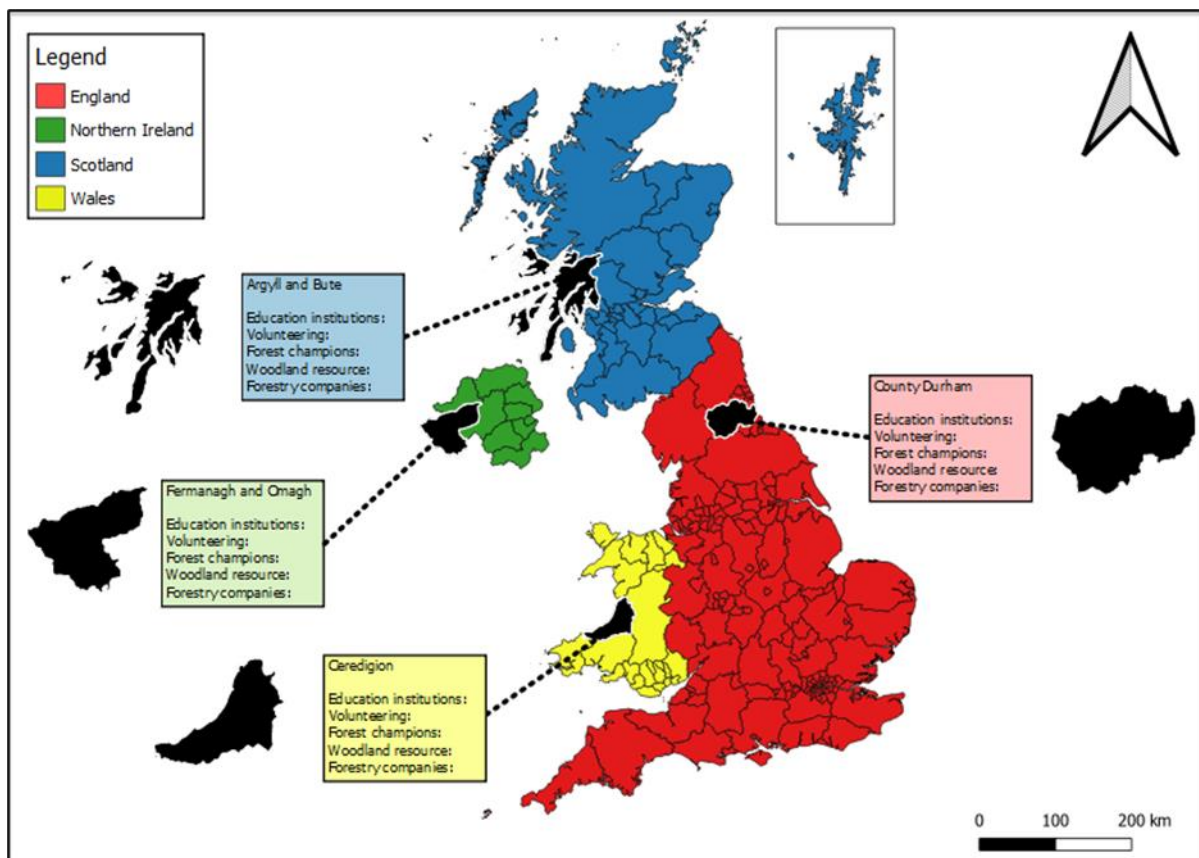


Figure 7 - Example of interactive UK map that would provide regional access and information to local forestry resources

This would take a similar route to the National Forest Wales programme – these forests could become a key feature of the gateway site using innovative tools and technologies to create engagement. Additionally, these physical resources could be areas to demonstrate forestry, work experience, volunteering, as well as training and education. Local resources will be

equipped to deliver local opportunities and avenues for interested candidates and future recruits, with a calendar and a map showing ‘what is happening near me’. A group of local champions could be representatives to help engage with the resource or ask questions about forestry. These resources could also engage with teaching activity and have indicative curriculum content. Linking to the National Forest Wales programme would be key and complementary branding, marketing and cross-border connection of pathways and network would be advantageous in building a UK-wide approach. Additionally, a governance layer that included regional representatives and funding potentially being drawn from Regional Enterprise Councils. A representative approach would aim to balance and address any imbalance across regions including potential contributions and woodland network provision.

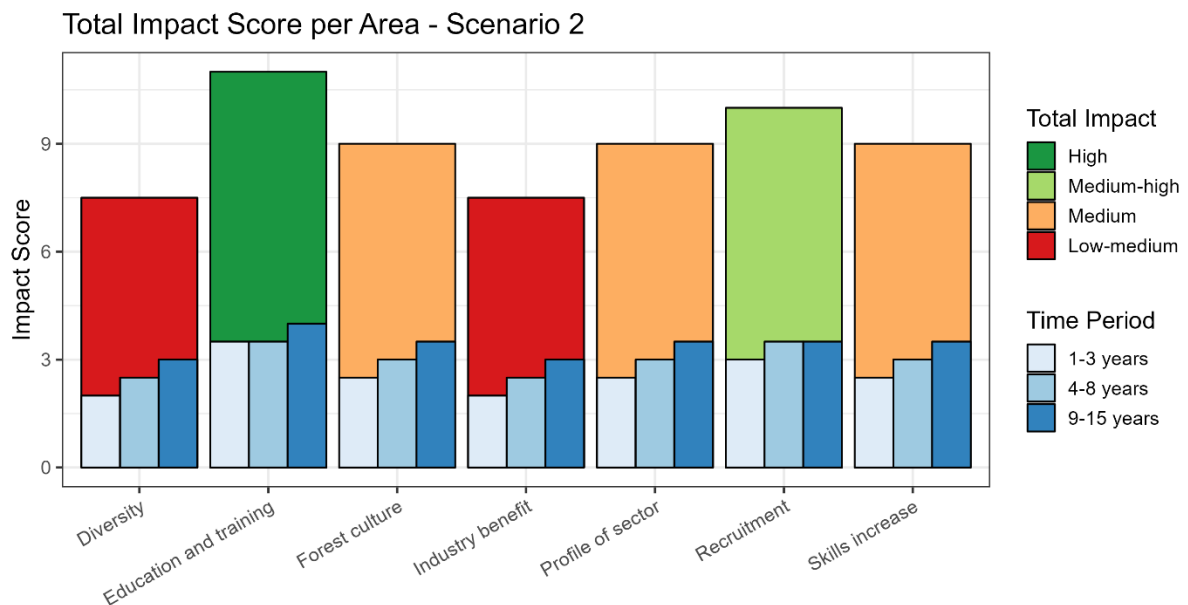


Figure 8 - Evaluated impact of scenario 2 over several categories and time periods (total impact is represented by the combined impact scores of the three time periods)

Risks

1. Developing a connected UK woodland infrastructure requires significant resource
2. Lack of regional connection and champions to connect with public and central group
3. New UK woodland brand competes with the Welsh National forestry
4. Framework excludes various forests structures that represent size, objectives, composition and ownership
5. Digital woodland infrastructure is not treated as seriously as physical to provide remote access to diverse stakeholders
6. Long-term plan and investment is inadequate to address programme goals

Key actions:

- Develop inclusive framework
- Define criteria, aims and goals
- Identify an initial network of woodlands that represent past, present and future

Scenario 3 – ‘Wood Wide Web’ - UK regional forestry Hubs

Rationale:

Forestry has lacked a strong social and collaborative network between education institutions, industry, NGOs and communities. Such a network would build capacity and identify key cross working areas to enhance UK delivery of forestry education, training, research and outreach.

Extended content:

Core content from scenario 1 and 2 with regional profiles and capacity building targeted at delivery institutions and community areas

Structure:

Explicit regional hubs developed through current networks, champions, STEM Ambassadors, community forests, as well as connected woodland resource for education. Central website with core regional pages, woodland resource and community forest network as skills areas. Key representatives identified for each region – perhaps highlighting regional specialities and expertise. Resulting in current providers with expanded profile and remit to increase number of skilled professionals to supply the industry

Team and governance:

Small multi-skilled team supported by professional advisory board, UK skills groups and regional forestry groups

Funding:

Central government funding for project implementation and sustainability – potentially supported by levy or membership, built into contracts for tenders – provision for training and upskilling

Main risks:

- 1) Lack of resources for coordination and infrastructure knitting at regional level
- 2) Perception/potential of unequable development from region to region
- 3) Inadequately executed – reflecting badly on the industry
- 4) Unwillingness of key partners across UK to meaningfully collaborate

Indicative cost and investment:

Medium

This scenario will aim to enhance the capacity of pre-existing providers and networks by extending their reach and connecting them with a wider audience. This will allow them to

increase the breadth of training they offer in response to the increased market, as well as allowing the hub to identify gaps in provision, with the aim to create a network of provision within 1-2 hours of travel for the majority of the UK population. A range of options would be available for support, including mentoring, formal educational partnerships, apprenticeship rings and more.

In order for this to function effectively, additional funding would have to be open to all providers in the network, so as to avoid undermining the existing centres of expertise and incentivising collaboration. This could be a great opportunity to support current providers but could also run the risk of subsidising inefficient or ineffective systems and delivery methods.

However, if this approach better connects demand and supply, and is led by the existing providers it may allow emergent hubs to develop more rapidly. There is potential for formal agreements to be established where the existing providers to nurture and 'pair' with emergent hubs, sharing their expertise in exchange for access to a wider audience.

These other hubs do not have to be official initiatives, they could be partnerships between FE or HE providers and the growing network of community woodlands, which were identified by a number of respondents, as untapped resources that could both enhance forestry and associated skills while simultaneously providing another stream of activity to diversify and stabilise these woodlands that at times are in precarious positions in regard to medium and long-term finances.

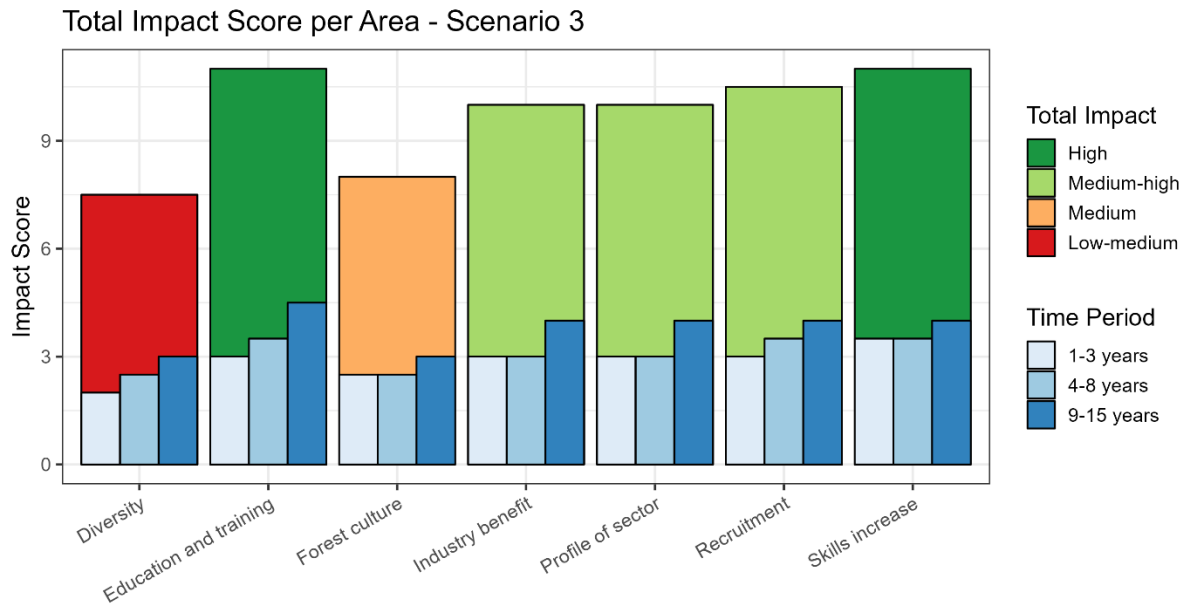


Figure 9 - Evaluated impact of scenario 3 over several categories and time periods (total impact is represented by the combined impact scores of the three time periods)

Risks

1. Current hubs (Forestry Schools) are too remote to attract people for training
2. Perceived pay back of potential career does not warrant the training and education fees
3. Current hubs do not have the space, resources and expertise to deliver the range of skills and certs required
4. Agencies and organisations do not support these hubs due to investment to in-house training
5. Industry agreement to support an educational and learning structure that enhances the industry across the UK
6. Feeding in an equitable structure – financially, geographically, staff and delivery
7. Lack of demand and uptake of new skills and education offering

Key actions:

- Engage with current providers as a group
- Formulate a plan to expand capacity of regional hubs
- Run pilots with public-private sector support

Scenario 4 – “Powering partnership” - UK Forestry Skills and Education Academy

Rationale:

Due to the dispersed network of forestry in the UK, a formal National Skills Academy would be formed to lead on developments, create key partnerships and to drive forward change.

Extended content:

Core content from scenario 1 to 3 with regional profiles and role to take the lead on larger capacity building projects targeted at delivery institutions, new provision, explicit planning to embed forestry catalysts or accelerator centres in a range of urban areas and regions with low forestry training provision. Tailored advice and guidance mechanisms will be available on training and quality assurance.

Structure:

Explicit regional hubs developed through current networks. Core aim leading on delivery of national programmes such as the Forestry STEM Ambassadors, Forestry Erasmus, work experience, shared apprentices and connected woodland resource for education. This would link into the digital space, a central website with core regional pages, woodland resource and community forest network as skills areas. Key representatives and development officers identified for each region and urban area – the ‘go to person’. Forestry NSAs would be established in key areas with initial pilots to learn lessons about effective implementation

Team and governance:

Small multi-skilled team supported by a network of development officers and professional advisory board

Funding:

Central government funding for project implementation and sustainability – potentially supported by levy or membership, built into contracts for tenders – provision for training and upskilling

Main risks:

- 1) Lack of resources for coordination and infrastructure knitting at regional level
- 2) Potential for (perceived or actual) unequal development from region to region
- 3) Inadequately executed – reflecting badly on the industry
- 4) Risk of poor traction in urban areas, or the scale of change required drowning out rural areas

Indicative cost and investment:

Medium-high

Scenario 4 is essentially the National Skills Academy model. It requires the creation of a central hub but encourages a lean approach by using current and existing infrastructure

including providing a stronger rural – urban connection where forestry can be showcased, demonstrated and used as training sites in urban locations including larger universities that are often embedded within cities and towns, providing not just a taster but meaningful access to forestry training. As identified by respondents the channels and access between what is predominantly a rural sector and urban areas are limited, even in some cases literal avenues of access to various types of woodland and rural environments. If such efforts are successful a tangential impact of more fluid movement between urban and rural communities might be seen providing a gradual increase forestry knowledge and skills between these areas,

Creating more robust standards and best practice could also be a part of the National Forestry Academy's (NFA) remit, alongside supporting wider access to the new centres of forestry knowledge and skills provision. A key role the NFA would facilitate would be the upskilling and capacity building of regions that have no forestry provision and presence – filling in the gaps and providing pathways to local opportunity whether in rural or urban areas. The main risks include unequal development and investment in certain regions due to previous history, greater infrastructure, physical resource and engaged people. Differences could be addressed by partnering regions one that are progressing rapidly with those making slower progress to help share knowledge, resources and mentor. Another risk is that urban areas will not immediately be receptive to the rural or forestry satellite areas, such initiatives can sometimes take years to provide evidence of impact or filter into the urban social fabric.

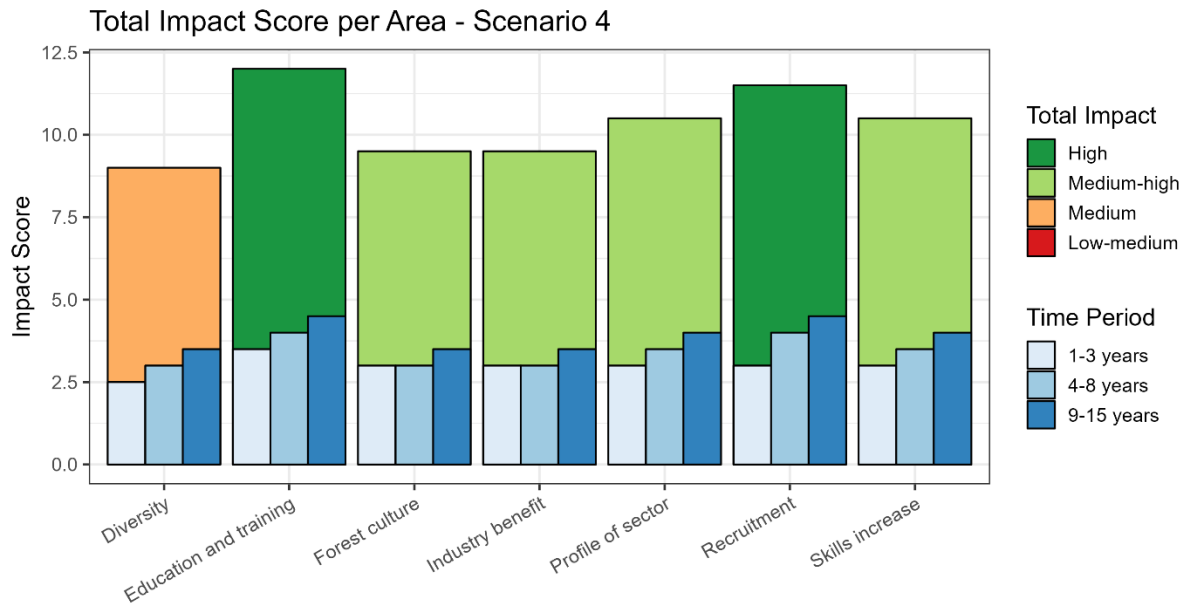


Figure 10 - Evaluated impact of scenario 4 over several categories and time periods (total impact is represented by the combined impact scores of the three time periods)

Risks

1. Skills gaps are missed, not timely developed or do not meet industry demand
2. Perpetuates an older system that is not fit for purpose any more
3. Misjudges motivation and offer to employer provider partnerships – brokers ineffective communication
4. Central costs are not kept low and lean
5. Little diversification of funding streams – lack of imagination and pragmatism
6. Starts with a lack of understanding for participants
7. Does not account for external factors such as recession
8. Spreading the NSA model too thin

Key actions:

- Identify skills academy candidates
- Formulate a plan to expand capacity of regional hubs
- Run pilots with public-private sector support

Scenario 5 – New UK Forestry centre and experience

Rationale:

A big and bold move to really raise the profile and showcase forestry, everything in one place to inspire people about forestry and the scope and potential for everyone.

Extended content:

Physical centre with woodland resource and exhibiting future and range of industry, including residences and experience area for tourism or wider public interest.

Structure:

New flagship physical forestry centre to meet current and future needs of entire sector providing a central space for UK skills, education and innovation. Central website linked to the new centre coordinating regional resources and representatives, located in central UK location with extensive woodland resource, access and urban catchment. Facility and various areas could be established/sponsored by industry specialists.

Team and governance:

Multi-skilled team with rotating staff supported by professional advisory board, UK skills groups and regional forestry groups and UK forest agencies.

Funding:

Central government funding for project implementation and sustainability – potentially supported by industry contribution plan, access lottery funding and build in support from grants systems and implement a tariff or duty to profile ESG from climate emissions.

Main risks:

- 1) High level capital and seed money required which may not address current issue immediately and might suffer generational lag
- 2) Focussing solely on skills that perpetuate traditional forestry perception
 - 3) Inadequately executed – reflecting badly on the industry
- 4) Undermine rather than complement and enhance current institutions
- 5) Funding pulled before longer-term impact can be captured

Indicative cost and investment:

High initial lay out, and high investment period over one or two decades

Scenario 5 is the most radical of the options, and therefore may be quite divisive. It has been included as some of those that we interviewed thought that starting from scratch unaffected

by current systems and infrastructure might present an exciting and fresh start that might appeal to the wider public (this is further supported by the survey data in section 4.). This centre could potentially be politically sensitive however, inevitably the UK centre would need to be situated in one country even if it is within a border region. Consensus would have to be reached and a location that has access to a large woodland resource, urban forest and agroforestry areas, transport, accommodation and even processing facilities. Ideally it would be within easy reach of large populations intersecting the rural-urban pathway. In order to develop such a place that could double a forestry experience and destination considerable capital funding would be needed from government and industry with a diversified funding model that could sustain and grow the centre.

As suggested in Figure 7 the five scenarios could themselves be a joined-up approach with the new centre ambitions broken down into a separate phased approach linked to milestones, evidence, industry and government backing, as well potential scoping out of philanthropic funding or resource allocation. This could reflect city or town planning or more appropriately the phased development of business parks and community campus' for regional colleges or universities.

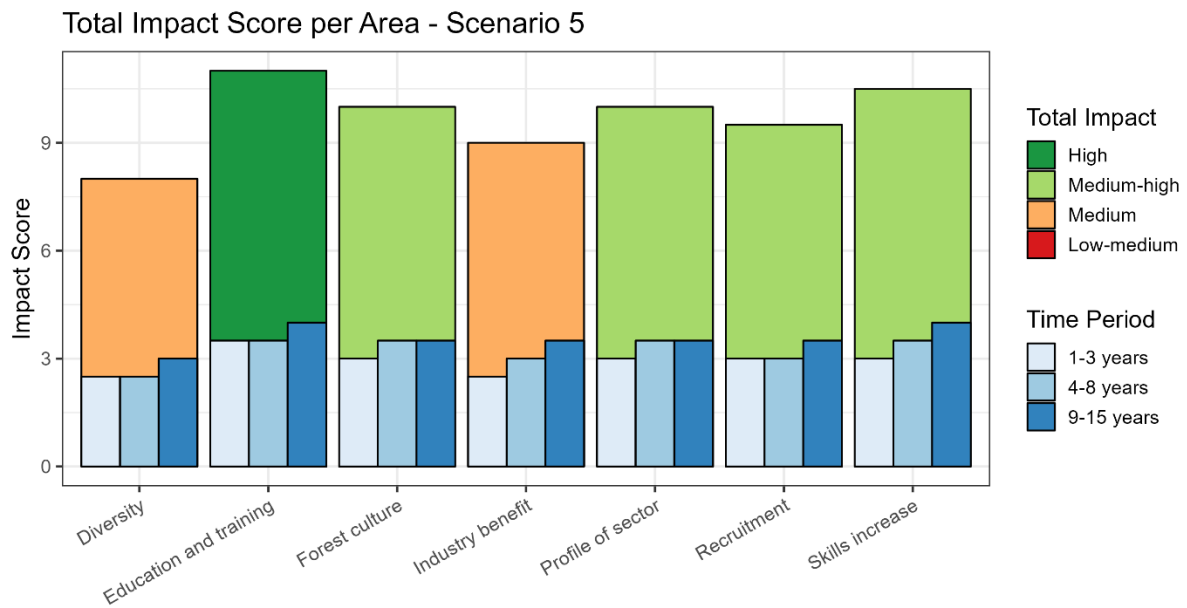


Figure 11 - Evaluation of impact of scenario 5 over several categories and time periods (total impact is represented by the combined impact scores of the three time periods)

<p>Risks</p> <ol style="list-style-type: none"> 1. Lack of capital investment due to scepticism of initiatives potential success or implications 2. Has to be in a single location but representing the UK 3. Penalises local learning and raises costs of learning for some 4. Marginalises broader and emerging range of skills required for diverse careers 5. Undermining and alienating current providers and drawing recruits from their catchment areas 6. Developed without an adaptable and flexible remit to responding to changing environments 7. Lack of private-public forestry sector partnership to support initiative 8. Lack of marketing and branding and connection to schools 	<p>Key actions:</p> <ul style="list-style-type: none"> ▪ Develop remit of new centre ▪ Identify potential sites with greatest benefits ▪ Engage with sector to provide foundational support and guidance
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5.1.1 Phased development of scenarios

As previously stated, the five scenarios proposed in Section 5.1 do not have to be considered in isolation, each scenario integrated and in succession could be a part of an adaptive

framework of phases. This could be conducted over an extended period starting with 'Discovery' and then moving on to associated with key milestones, establishing and implementing funding mechanisms, as well as building capacity in the network over the UK.

A process such as the phased development of the Finding Forestry initiative will need clear guidance, support, governance and processes put in place for effective operation with the flexibility to adapt to emerging issues or changes. These areas are considered in the next section.

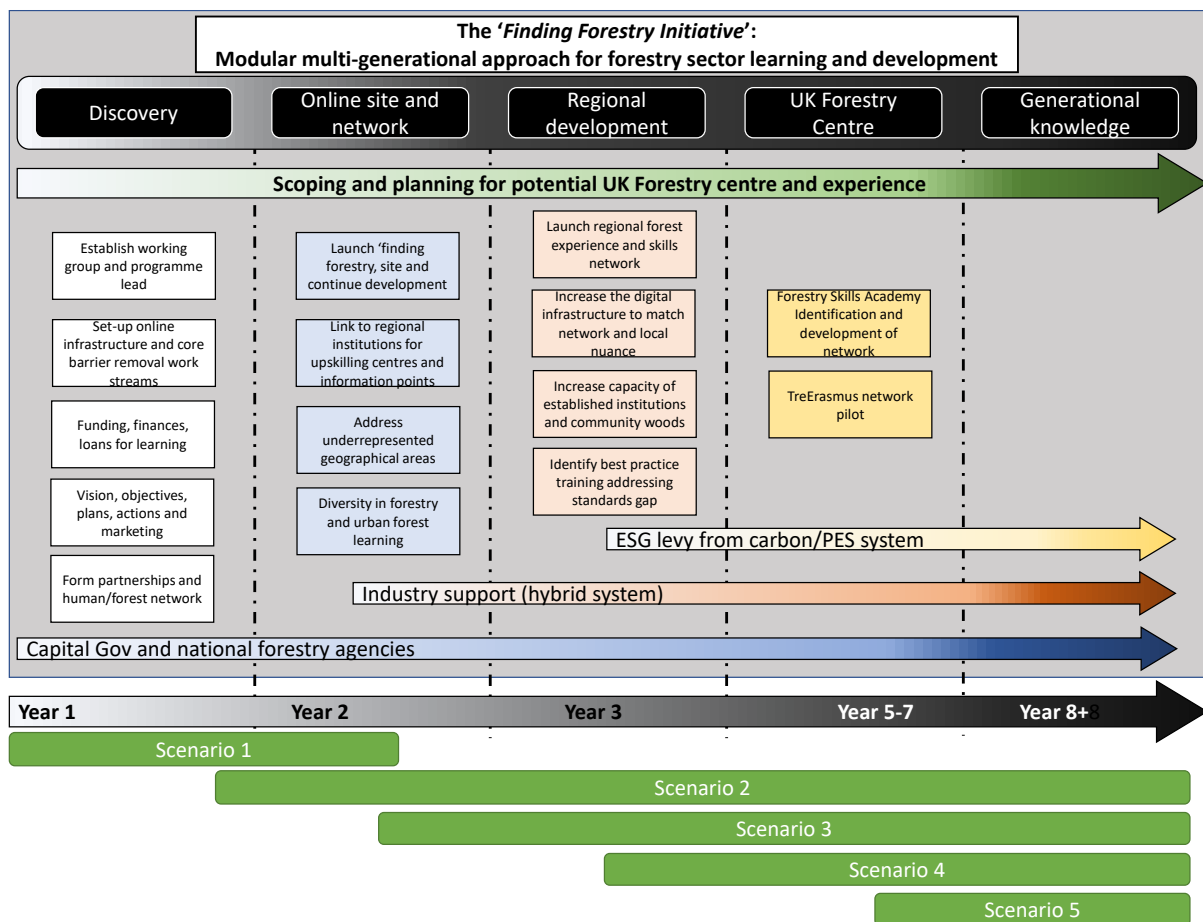


Figure 12 - Diagram of potential phased approach to developing the new UK forestry learning space/mechanism

5.2 Governance

Governance was identified as one of the most significant challenges by most respondents. The majority felt that an overseeing or monitoring body should be DEFRA or Forestry Commission England in partnership with the devolved nations agencies operating under a flexible and adaptable approach which could respond rapidly to the needs and gaps in the wider industry. Being led by such organisations would mean the potential for fast-tracking procedures, and flexible funding provision for emergency projects or barrier scrubbing initiatives.

An advisory group would be essential, composed of industry, NGOs, Skills groups and appropriate externals representing the breadth and future of the forestry world (youth voices, associated land-based industries). Existing Skills Groups could provide a template or baseline membership for an enhanced group.

However, it is clear from the research that whichever scenario is selected, it would need to be led by a new team appointed to develop, curate and drive the new forestry space and associated networks. The 'corporate memory' in forestry is long, and there are many who would have suspicions about any of the existing bodies taking ownership, or who would have concerns about conflicts of interest. However, this has an associated risk of 'the same mistakes being made' by those without that very corporate memory.

The review of the National Skills Academies also emphasised the importance of a clear brand at the start, so as to ensure roles were not confused with sector skills councils, etc. Lantra is the sector Skills Council for this area, but its role is different in the devolved nations. In Scotland, it receives some funding from Scottish Government for the kind of activities we are suggesting, but for all of the land-based sectors (including forestry). In England, this funding is not available, and so they are predominantly known for accrediting land based short courses and training and engagement of the public with forestry is mainly through charities such as

RFS. To avoid confusion however, a clear distinction and new brand should be created at the very beginning.

This new team should have clear links into regional representatives that can develop and curate regional resources (woodland access, volunteering schemes and hub development), . Depending on the scale and size of this regional representation a person or group of people can be nominated to become that interface and work locally with the central team. A county level report for a forestry hub in Hereford suggested that an appropriate or passionate member of staff from a forest agency or the Forestry Commission England could be bought out for a day a week (CIAN, 2021). This proposed model could focus on generating the financial support locally at these designated regional areas through local industry or in-kind contribution by the Forestry Commission England to create a locked-in network to support the central team. Evidence has suggested that working through dual top-down and bottom-up approaches increases the probability of success with collaborative initiatives, as a result of the trust being built through known and trusted entities at both a national and local level (Curtin, 2014; Head and Alford, 2015; Cockburn et al., 2016; Abrams et al., 2019; Nijnik et al., 2019).

5.2.1 Funding

Funding would very much depend upon the identified scenario but could be both staged and layered. The most significant expense for each of the options would naturally be early on in the project, with funding streams diversifying as the projects evolve. The former would very likely need to be sourced from **central government** in alignment the tree planting targets, but some potential options for the latter are:

Industry funding – using a levy or duty that will sustainably support the forestry industry through decades of development, giving back to the industry to support meeting future increase of the resource, demand for timber, tackle climate change threats and provide community and well-being spaces.

Provision of training in tender contracts similar to some construction tender requirements, where the bidders have to show how they will employ and train apprentices as part of the work, thereby encouraging the natural development of hubs where the training is most required.

Climate community skills fund, this is an Environmental and Social Governance enhancement strategy and tool to directly involve woodland planted for carbon sequestration under the Woodland Carbon Code which would draw-up a small percentage of the carbon credits purchased for local socio-economic development aims in the form of education, training and upskilling of the community. It could be seen as re-investing in the local forestry sector to provide a skilled workforce to manage woodlands resiliently and improve the carbon capture and multifunctional benefits of the woodland. Part of this could be held annually to develop UK forestry education across the UK, looking at key development and capacity building themes which could involve single bids from centres and institutions or joint bids from several suppliers of education and training for more long-term strategic goals. This funding may only be able to provide small pots but could reinvigorate time for innovation, collaboration and building quality resource for highly sought-after education experiences.

Education funding – there are different educational and funding models in the devolved nations, but a scheme similar to Erasmus has potential to increase income to Forest Research and the existing HEIs, if non-forestry universities had the confidence to broaden their student offering, by connecting them with materials and modules of a high standard, but at a lower cost than replicating material themselves. Student participation could then be ‘charged back’ to the non-forestry university, generating income for the others.

National Lottery Funding has supported and championed large infrastructure projects, creating a network of community hubs for climate action through the Climate Action Fund. Growing Great Ideas Fund is supporting a Future Farming (£1.5 million) project for the promotion and creation of an agroecology food movement across the UK. The Climate Action Fund supports the engagement of individuals and communities by creating eight hubs across

the Leeds metro area to deliver community-led activities and sustainable change beyond the duration of the project. The UK Portfolio Fund has funded major projects (up to £5 million) that develops new ways to build a stronger civil society (The National Lottery, 2022). All these funds and projects are potential examples that match the aims of the '*Finding Forestry*' Initiative and could be used as match or kick-starter finding, even creating some regional case study hubs to gather evidence and replicate across the UK.

Crowdfunding for UK forestry experience network creating accessibility, learning and health for all people. Admittedly, this may not seem to be an appropriate fit but could provide a funding source for specific projects that are community-led to provide regular access to woodlands, provide skills training for a large cohort of unemployed youth or even creating cutting-edge and engaging forestry experiences. These models reach world-wide funders and imagination is often fired by the uniqueness of the pitch and the offering in the funded pack depending on the level of contribution.

Membership fee – Most of the National Skills Academies charged a membership fee, ranging from £2,000 to £20,000. This could vary depending on the role and size of the organisation. Some could also pay in kind, through access to machinery, land, staff or premises. However, the latter would need to be a clear 'need' of the academy. Another complementary funding stream that could work in tandem or through another work stream to the government funds is **direct contribution from identified industry benefactors** that are interested in providing a better and more accessible sector for all.

Timber sales levy, as a globally significant net importer of timber the UK brings a lot of timber products into the country year-upon-year. A small percentage of the duty could be redirected into infrastructure for the forestry industry key priorities and growth areas including education, training and skills. This ESG or socio-economic capacity-building could be agreed within the trade contracts and could be explicitly showcased to provide evidence. Similar to the measures in the Social Value Act of 2012 which ensures that any procurement process brings in social, economic and environment benefit to the region including employment, training and

cohesive communities. These measures could be used to build a robust forestry sector through training that would support tree planting initiatives that increase carbon sequestration (HM Government, 2020).

Green job training programme partnerships for channelling unemployed young people into jobs within the forestry sector, an example can be found in the construction industry where Generation: You Employed, UK has partnered with Macquarie Finance which offers profession-specific training to unemployed people between 16-24. This is in part a way to redress the groups most effected by employability during the pandemic, fast-tracking the training to equip learners with the appropriate behavioural and technical skills they will need to thrive and gain jobs. This includes expert trainers (which should be placed at locally accessible locations to mitigate any economic barriers), one-to-one mentorship and active matchmaking and work placement with employers at the completion of the training (E&T, 2021).

5.2.2 The process, decision-making and consensus

Another concern that was raised by interviewees was the need for consensus for change to occur or agreement to be reached. *“It just takes one person to say no, and then nothing happens, and we have to start again from the beginning.”* Many of the scenarios involve steering groups or committees, and so it is important that this is discussed early in the planning process.

Processes designed to foster effective and equitable decision-making for multiple stakeholders is necessary for moving forward and creating change. Consensus is another key component and should not be used as a barrier or way of derailing initiatives/schemes that does not fit with everyone’s agenda. Normally 100% consensus is unlikely and no action can go forward by looking for total agreement from all parties. This will and has delayed and prevented schemes without an opportunity to address the issues they were designed to tackle.

In most governance systems, consensus is not required to pass change; usually a specifically mandated majority is required and in some of the European Directives and COPs of international agreements two thirds or three quarters of a majority are required to implement change. Consensus should be reached without disagreement but with large remits and diverse stakeholders this can prolong processes and can result in failures to enact bundles of agreement that marks progress and subsequent action.

The Forest Stewardship Council (FSC) has the aim of improving global forests for everyone and institute a governance system through which members apply to join one of three chambers covering Environment, Social and Economic, which have 33.3% of the vote each and is weighed to guarantee a 50/50 representation from the north and south. Ideally consensus will be reached at the FSC Assemblies, which is the absence of any sustained opposition, however this does not require unanimity. In case a vote is required a quorum forming over 50% of voting power members will be assembled, where a simple majority of all registered members and a two-thirds voting majority for all members will progress decision-making (FSC, 2021).

5.3 Risks

5.3.1 Learning space/mechanism

Any new development poses risks, especially when so many platforms, training initiatives suffer from a lack of sustainable funding and become redundant and static shortly after funding periods have ended. Several risks were identified by respondents many of whom have been a part of projects and programmes promoting skills, community, engagement and growth. There are two contrasting side to risks of launching the forestry learning space highlighting the need for balance - the majority of the respondents both emphasised the risk of trying to roll something out too quickly that is not well-considered, designed or tested and becomes a blemish on the sector's track record putting it back years and undermining any further

initiatives however, in contrast to this many of the same respondents also stated that we cannot take too long or wait any longer, as the window of opportunity and receptiveness is now, and we need to capitalise on this momentum.

One key concern beyond scenarios 1 and 2 is the potential risk of alienating some training providers and existing institutions as capacity building and generating new hubs of capacity in other areas may divert students away from current centres. Therefore, finding a way to complement and providing services to current institutions may mitigate this concern, additionally the current expertise within these institutions could be outsourced to help develop, verify and monitor best practice in education and training delivery.

All scenarios are at risk of becoming another casualty of legacy drift and fading into obscurity and memory, which happens to many platforms, programmes and projects, especially at the end of funding periods if there is no appropriate sustainability planning put in place. The industry does not need a failed UK-wide initiative to setback the industry and work that has needed to be implemented for decades. A multi-generational approach and plan needs to be put in place over decades with short-term, medium-term and long-term milestones and goals attached to funding and additional markers.

As a relatively small industry perceived as being very traditional and somewhat behind the times, approximately half of the respondents are concerned that loud, dominant and the usual suspect of voices will control the process and create an echo chamber without wider and comprehensive representation of the sector today. This can be mitigated by an appropriate process and governance design, establishing a process that involves and is co-developed with a wide range of stakeholders within the ambit of forestry and associated industries including an inclusive core team or steering group that employs a flexible representation structure with expertise, specific group representation and specialty rotating as required through streamlined working group structures. However, this should not interfere but enhance the need for consistent and quick decision-making.

An ongoing concern of the industry as a whole is the continual perception that logging is the central activity that is executed in a blunt way without reflecting the sophistication, skills, knowledge and professionalism involved. The focus on core forestry skills and leaving out the rest of the forestry professional areas runs the risk of perpetuating the narrow stereotype of the low technical skills that does not command the respect of other professions. Therefore, alongside promoting the core skills to meet raw planting targets, provision that is representative of expansive skillset required in forestry, as well as emerging skills areas, should be offered.

As this process or the future of a new UK-wide forestry learning space or mechanism is dependent on funding and support whether from government, industry or other diverse sources, this initiative will not be possible without buy-in, investment and continued sector support including public, private, and third sectors, as well as strong representation from the representative bodies and the SME- cohort that dominates the sector. The Borderlands Deal included forestry almost as an afterthought with the Dairy Centre at Barony SRUC being the main focus of land use development – they have been allocated £4-5 million over the duration of the funding period (10-15 years) to create a potential Forestry Innovation Centre. The National Forest for Wales programme has been allocated £15 million over 5 years, however other green jobs and skills initiatives at the sector level have been allocated specific funds for implementing training schemes. For example £40 million was allocated to green jobs and nature recovery from the Green Recovery Challenge Fund (Innovation News Network, 2021). Significant resource will be required to implement a meaningful UK-wide multi-generational initiative that has a fighting chance to impact our green economy and create impetus and a structure for a cultural shift. Large central funding such as City Deals have been constrained by managerialist institutions and a conservative/risk-averse administrative culture which has undermined infrastructure financialisation and entrepreneurial governance (O'Brien and Pike, 2018).

Solely emphasising the 'UK-centric' nature of the learning space without acknowledging the deep links through education, research and knowledge exchange that have been cultivated through international forestry collaboration over generations, especially reflecting on relationship developments in a post-BREXIT world could run the risk of alienating the wider forestry world and unintentionally developing an insular mechanism.

A major concern of almost all the respondents was that any new UK learning space/mechanism would not duplicate or repeat efforts of former programmes and current resources. It should recognise the valuable resources currently available through the ICF, RFS and emerging material created by Woodland Trust and Canopy Learning, as well as material created through the UK forestry agencies and UK cross border institution of Forest Research, which deals in cutting-edge research and forestry knowledge. This concern can be mitigated by conducting a stocktake of current resources and tools on offer and ensuring that the UK learning space would link rapidly to specific resources without having to travel or navigate through various webpages and sub-areas.

5.3.2 Business as usual

The largest risk identified by a high majority of all respondents was doing nothing and keep churning out reports that identify gaps and barriers that are then never addressed in a coordinated way by the entire UK forestry sector. *"Status Quo is currently here to stay unless something significant happens to change behaviours and the culture, we need something otherwise things will continue to happen until it's taken out of the industry's hands"*. Respondents from government, industry, education, associated industries and third sector were in complete agreement that action was required but *"needed to be done with meaning and needed to be done well"*. The main mitigation strategy would be to commission a programme or phase 1 project to begin implementing core recommendations from this report.

5.4 UK Forest education network and feeding into national initiatives

Using an existing infrastructure and considering the various contexts across the devolved nations is as important as developing and coordinating a network that enhances collaboration knowledge exchange and provides a greater collective voice.

Wales

For instance, the new National Forest Wales programme would be a key initiative to link in with along with Natural Resource Wales. The education centres include Bangor University and Cambria College which delivers the new Tilhill Diploma in Forestry and Woodland Management while the array of courses at Bangor has a strong international emphasis and attracts many international students with significant postgraduate provision. A new undergraduate degree in Woodland Management and Conservation includes agroecology, biodiversity, renewables and public wellbeing which indicates the continuing recognition of forestry as a diverse sector and has the potential to capture a wider and more diverse student base.

Northern Ireland (NI)

Northern Ireland is dominated by farming with a much smaller forest sector with no forestry dedicated training providers or options for want-to-be foresters. CAFRE is their major land use College but there are no current plans to integrate forestry courses or training; normally training is sourced from outside the country whether education or CPD. CAFRE would be the obvious current provider to expand provision into forestry, especially due to its multi-geographic campus model. *“One key element to remember about Northern Ireland is that it is a part of the ‘One Island Ireland’ and that there is a lot of cross border activity through contracting, work and even recreation”*. The Republic of Ireland has at least three forestry education and training centres including University College Dublin, Waterford Institute and TEAGASC. Therefore, with the inclusion of Northern Ireland it is logical to include the Republic of Ireland due to the historic, geographical and cultural relationships. Many UK institutions

have collaborated with the Irish institutions and students are often educated in the UK. According to the NI Forest Service, staff are mostly external from NI, which highlights the need for greater homegrown talent to be brought into and attracted to forestry.

England

England has the largest and densest population, as well as significant urban areas which causes challenges for woodland expansion targets but also means larger populations within a close catchment of woodlands. The main providers include University of Cumbria which includes the National School of Forestry campus at Ambleside, formerly known as Newton Rigg for many decades, however this campus was closed in 2020. Cumbria recently launched a professional forestry apprenticeship jointly led by Forestry Commission England and ICF which offers practical experience and industry engagement alongside a BSc to Development Woodland Officers – 45 positions will be created over the next three years. Other providers include Plumpton College and Harper Adams University (mostly postgraduate forestry provision) with agricultural or rural colleges such as Cirencester and Cranfield offering forest-related modules within their country management courses. Birmingham Institute of Forest Research (BIFOR) created in 2014 brings together interdisciplinary research providing educational opportunities through its forest and estate resources from which online school materials have been developed.

Scotland

As the largest forestry nation in the UK with woodland cover of 19% and greater commercial capacity, Scotland is seen as key in delivering woodland expansion targets. Currently there are two forestry providers including the Scottish School of Forestry, Inverness College UHI (Highlands), which offers nation certificate all the way to MRes, additionally they currently have 16 modern apprenticeships. Barony College (Dumfries and Galloway), which operates under Scotland's Rural College (SRUC), focuses on further education and has courses up to HN level and provides technical courses including forest machine harvesting courses. Aberdeen

University once had a well-respected undergraduate forestry course, which closed down in 2018 due to lack of demand for the course, therefore impacting the feasibility of delivery. Aberdeen still offers Masters' level forestry courses but the legacy of its former forestry courses leaves a geographic hole in regional opportunities.

UK Forest education network

As evidenced by the interviews and survey there has been a lot of will and enthusiasm in the past to join up forestry education and training institutions across the UK and Ireland. This enthusiasm and will continues to this day where all institutes have expressed the continued interest to link up and collaborate. Ideally this would share resources, expertise and even combining degrees and in this way a network of enhanced provision could be facilitated, however it is widely acknowledged amongst the educators that bypassing the administration and separating out each institution's economic stake/contribution would be difficult.

An Erasmus type UK forestry specific scheme has been suggested offering an experience around the different providers showcasing the diverse geographical and cultural landscapes. This could be made more feasible by recent development of online delivery at least for shared seminars and the key collaborative modules that brings together the network to make-up or enhance credit load. A "TreErasmus" scheme could offer forestry modules being provided by current providers to institutions around the UK and Ireland through degree course such as geography, ecology, environmental science/management, sustainable development. Even the possibility of developing transdisciplinary modules and learning forums has been advocated which brings together students from the sciences, humanities and arts under uber or meta modules that deal with climate change, biodiversity, green and bioeconomies.

For this to work, it would require a meta educational model that uses innovative and dynamic pedagogy but can sit alongside and complement the current institutional systems without becoming entangled in the complex alignment of administration, responsibility and dividing-up

the spoils. This could be a medium-term goal of the new forestry learning space to develop and create the necessary infrastructure for this meta environment for forestry collaboration and education to exist. In this way the forestry sector education and training environment could offer something very attractive that is not offered anywhere else.

Forest Research is an existing forestry knowledge infrastructure that spans the four devolved nations of the UK which promotes knowledge creation, exchange and pushing the frontiers of scientific evidence for a range of forestry related functions and impacts. Despite their engagement with communication and dissemination including guest lectures at forestry education institutions they are an untapped resource that could potentially be a powerful provider/contributor to forest education across the UK. The Centre for Forest Protection could indicate a beginning to greater engagement with education and if successful provide a model to follow for creating education opportunities for key areas of forestry.

5.5 Forestry and agriculture – moving forward together

Collaboration and strengthened working and training relationships between forestry and agriculture was mentioned as a key area for holistic rural development and a healthy green economy. As land-based industries steeped in similar tradition and cultural legacy of professions carved from geographical location and familial connection, the sectors share common challenges (Morgan-Davies and Waterhouse, 2010; Beckert, Smith and Chapman, 2016; Fieldsend *et al.*, 2021). Whether recruitment, skills training, climate change threats, pest and diseases, GHG emissions mitigation and adapting to new approaches, the two sectors have incentive to work together and even align education and training goals. Education institutions have shared the same type of development, location, pedagogies and experiences of being perceived by wider society in a certain way.

There are key overlaps that draw the industries together - such as agroforestry, farm forestry, trees on and around farms, and hedgerows - and the continuing approaches such as

agroecology, climate-friendly and smart landscapes (Climate-smart agriculture and forestry) are leading the way to more unified approaches that strongly link to ecosystem services and resilient integrated land use practices (Sharmina *et al.*, 2016; Anderson *et al.*, 2020; Bowditch *et al.*, 2020). A close working relationship between the new learning space/mechanism and TIAH could enhance the ability of both forestry and agriculture institutes to be used as regional training hubs and innovation spaces that develop integrated land use approaches and climate-smart landscapes.

5.6 Forestry, timber and construction – interconnected sectors and supply chain

The attention around homegrown timber, aiming to grow construction-grade timber along with engineered timber products for timber-based structures and buildings has increased considerably in the last decade, especially with the carbon sequestration narrative. Construction and forestry are interlinked within the same supply chain through use of timber and wood materials, substitution of more emission heavy materials and long-term storage of carbon in structures. Producing professionals for sustainable construction and the built environment sectors will require understanding of the various parts of the supply chain that provides the foundations for a sustainable circular economy. Although a much larger industry, construction is suffering for the same decline in workforce, difficulty in recruitment and skills shortages as the forestry sector.

New centres such as the Edinburgh Napier and Hereford Centre for Advanced Timber Technology which combines research and development with an innovative education space, as well as the newly merged Schools of Construction and Forestry at Inverness College UHI indicates the direction of travel for the industries. Organisations such as Timber Research Development Association (TRADA), Scottish Forestry Timber Technologies leadership group

(SFTT) and the Construction Industry Training Board (CITB) represent some key support structures and collaborative initiatives to inform the new forestry learning space.

5.7 Small-Medium Business factor

A key aspect of the forestry sector is the large number of small and medium businesses that perform many of the operations and populate the supply chain through contracting and sub-contracting. Collectively these businesses could have significant influence if effectively organised but these businesses are vulnerable to low profitability and poor sustainability (Kronholm *et al.*, 2019; Bowditch, 2020). Therefore, this report recommends finding a way to be more inclusive and connect them to the sector more fully through regional development of skilled workers, recognition of CPD, further business development opportunities and flexible funding mechanisms, as well as a quality framework in which to progress and advance best practice. Often viewed as the underappreciated workhorse of the industry, the SME's could provide a mobile and untapped resource for skills training and consolidation within a place-based working radius. This could be extended to CPD and integration into the Skills Academy and/or Forestry training network with the appropriate processes put in place. SMEs also have significant potential to support the place-based Apprenticeship and shared Apprenticeship models, along with pre-apprenticeship and apprenticeship rings. However, their capacity is limited and generally insufficient to deal with the administration and establishment. If those barriers could be removed and a simple, fluid, accessible framework was to be set-up this might draw the significant cohort of SMEs into the training game across the UK.

6. Recommendations and next steps

Despite the complex issues and landscape of the forestry sector this research has some very simple and clear messages: A considered and collective effort is required to address the skills

crisis, which will require the sector to work together. A strong concept is required to rally forestry professionals, educators, researchers and associated professionals. This starts with '*Finding Forestry*' and could grow into an effective network that infuses forestry in all its forms into every part of the UK. Key priorities are (to be decided and progressed by an appropriate group of stakeholders with forestry education and skills interest that establishes an initial timeline and seed funding with government and industry support):

Short-term

- Engage central and devolved governments for capital funding: consult and canvass industry to gauge the willingness and potential level of engagement with the initiative
- Establish a group of representatives of UK and Irish forestry education institutions and training providers; link to an overarching industry leadership group
- Establish a relevant and dynamic group to drive the forestry learning space from concept to reality
- Quickly create the '*Finding Forestry*' site as a first step and central point for the sector to rally around, and move on to other phases of the initiative
- Stocktake industry bodies and organisations to identify extent of current resource that could fit into and be coordinated by the "*Finding Forestry*" site
- Fully flesh out a diversity of funding models to create regional training opportunities and programmes (well-being and upskilling – local authorities, training levies and ESG strategies)
- Create an introduction to Forestry taster Massive Open Online Courses (MOOC) from UK forestry education network to raise awareness and provide free access to engaging forestry learning materials – which should be viewed as a first step towards TreErasmus
- Engage with Forest Research to explore cross UK education opportunities and network.

Medium-term

- Create a Schools curriculum and teaching area within the new learning space for teachers and educators, link to an explicit 'Forestry school curriculum taskforce'.
- Develop an associated social media strategy and campaign to engage the younger generation. This should be twinned with targeted material to influence parents, career influencers and prospective career changers and shifters about the advantages and benefits of working in the industry.
- Map and identify high-level forestry regions and low-level delivery areas in the UK for capacity building and cross-landscape mentorship
- Identify pilot areas for development forestry hubs, ideally in all four devolved nations plus cooperation with Republic of Ireland
- Identify a network of different woodland resources including urban areas across the UK to create an interlinked UK woodland network that supports local goals and provide spaces for engagement and training
- Link in with emerging regional approaches such as the Borderland Forestry Innovation Centre concept and identify supportive collaborations and actions
- Examine student tuition, equipment and training loan structures to remove barriers for uptake and entering the sector at different stages, and create a more appealing economic incentive for staying in the industry (Environmental Service Loan Forgiveness Scheme)
- Employ a person to drive the initiative and develop the right partnership – cannot depend on consensus due urgency, therefore installing a new team quickly for rapid response is paramount
- Upskill and create an appealing model and environment for SMEs to become involved in training
- Build key evidence such as the ratio of graduates to jobs availability and number of graduates that go straight into jobs in comparison to other sectors

Long-term

- Recognise that this is an investment for multiple-generations of growth; short-term wins are possible but long-term smart-development of the sector is key.
- Continued investment in raising awareness of sector for attraction and retention that is not just a single campaign and takes advantage of climate change narrative promoting trees and forestry as central to green jobs of future

It is rare that complete agreement is seen over a single issue, the skills crisis and window of opportunity for forestry to take advantage of the political and public focus on woodlands and climate is one of these issues. The call for action and recognition that we need to act quickly and wisely has been expressed by everyone in this study, the fate of forestry lies in the hands of the industry, and therefore their task to take forward collectively and support in earnest for a lasting legacy, *“it has to be done now, and we have to do it properly to reflect the seriousness of the issue and the tremendous opportunity in the sector now and into the future”*.

Next steps

- Disseminate report and use as a guide for discourse and decisions to progress the ‘Finding Forestry Initiative’.
- A group of industry representatives from across public, private and forestry sectors, as well as education should convene to agree an initial plan and identify funding.
- Produce a vision, strategy and action plan.
- Appoint an individual to drive the new initiative and manage the developing programme.

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