A Forestry Skills Study for England and Wales

Forestry Skills Forum

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RFS
ROYAL FORESTRY SOCIETY

Forestry Commission
England

University of
Cumbria

The
Scottish
Forestry Trust

NATIONAL SCHOOL OF
FORESTRY

WOODLAND
HERITAGE
for the future of British woods

A Forestry Skills Study for England and Wales

Prepared for:

The Royal Forestry Society

Supported by:

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Scottish Forestry Trust

University of Cumbria

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On behalf of the Forestry Skills Forum

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TIMBER STRATEGIES

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Contents

1. Introduction

Background

1.1. The Forestry Skills Study was commissioned by the Royal Forestry Society with support from Woodland Heritage, Forestry Commission England, Scottish Forestry Trust and University of Cumbria, on behalf of the Forestry Skills Forum.

1.2. The Forestry Skills Forum consists of a number of public, private and third sector organisations, all of which have an interest in ensuring the forestry sector benefits from a highly skilled workforce able to undertake the wide variety of tasks required for the sustainable management of the nation's woodlands.

1.3. An open Invitation to Quote was issued by the RFS on 28th April 2017 and, following a competitive tendering process, RDI Associates were appointed to undertake the work on 24th May 2017. The study team consisted of Will Richardson (RDI Associates[1]), Martin Glynn (Martin Glynn FICFor[2], lead consultant), Neville Elstone (Cumbria Woodlands[3]) and Jez Ralph (Timber Strategies[4]).

1.4. The Study was overseen by a Steering Group comprising Simon Lloyd (Royal Forestry Society), Steve Fowkes (Forestry Commission England), Guy Corbett-Marshall (Woodland Heritage) and Mark Tomlinson (University of Cumbria).

Purpose, Objectives and Scope

1.5. The overall purpose of the study was to '*provide an evidence base that informs a skills action plan designed to support the national policy objectives of achieving growth of the forestry sector and active management of an increased area of woodland*'.

1.6. There were five key objectives of the study: -

1. Assess the current profile of the forestry sector in terms of employment, skills, age, gender, diversity and business area.
2. Investigate current training provision by all providers, across all levels, across the forestry sector.
3. Assess and map appropriateness of training provision against workforce current and future needs (including skills gap analysis).
4. Identify routes to employment and career progression at all academic levels (i.e. further and higher education) over the forestry sector, and barriers to same.
5. Recommendations to support the development of a future action plan that addresses the skills and training needs of the forestry sector.

1.7. The scope of the study was defined as: -

- Emphasis on the forest establishment, management and harvesting sub-sectors.
- The wood/timber processing sector is beyond the scope of this study.
- The nursery sector is beyond the scope of this study.
- The arboriculture sector is beyond the scope of this study.
- The study will be limited to England and Wales.

[1] http://www.ruraldevelopment.org.uk/
[2] http://www.martinglynn.co.uk/
[3] http://www.cumbriawoodlands.co.uk/
[4] http://timberstrategies.com/

Outputs and Timescales

1.8. The key outputs from the Study are: -

1.8.1. A complete report with appendices and statistical information (this document)

1.8.2. An executive summary with key highlights and recommendations, suitable for wide dissemination throughout the forestry sector. This Executive Summary is published as a separate document.

1.8.3. A presentation of the report to the Forestry Skills Forum.

1.9. A Project Inception Meeting was held on 1st June 2017. The initial draft report was submitted on 22nd September 2017 and the final report was due on 23rd October 2017.

Methodology

1.10. The methodology for this study was incorporated in the response to the invitation to quote. It was finalized in agreement with the Steering Group and the final format is described in Appendix IV.

2. Assessment of the current profile of the forestry sector

Context

2.1. Statistics relating to employment in forestry derive primarily from Office for National Statistics (ONS) Labour Force, Annual Business and Annual Population Survey data.

2.2. The annual Forestry Commission publication 'Forestry Statistics[5]' uses the Annual Business Survey (ABS) to provide statistics on employment in forestry. The ABS derives its data from 'UK trading businesses that are registered for VAT and/or PAYE'. It does not include data on either businesses which are not registered for VAT or PAYE, nor for the self-employed. Anecdotal evidence indicates that a substantial proportion of the forestry sector workforce is made up of sole traders and/or the self-employed who are not registered for VAT or PAYE and thus this data is likely to represent a significant under-estimate of the actual figure.

2.3. The Labour Force Survey (LBS) and Annual Population Survey (APS) are recurring statistical surveys conducted by the ONS, sampling all businesses and households. Whilst this should provide more inclusive data for employment in forestry including self-employment, the sector and thus sample sizes are too small for the ONS to provide reliable estimates[6] relating to many areas of enquiry.

2.4. Some estimation of the proportion of employee numbers not included in the ABS is given by data provided by the UK for the State of Europe's Forests 2015 Report[7]. This data is based on the Labour Force Survey but for the whole of the UK and averaged over three years, and thus provides a sufficiently large sample to be considered reliable. Table 1 uses this data, indicating numbers for employed and self-employed in the UK forestry sector and thus provides an indication of the proportions of each. It should be noted that some self-employed will be registered for VAT and/or PAYE and thus would come within the bounds of the ABS and, therefore, Forestry Statistics.

Table 1: Job Characteristics in UK Forestry 1990 - 2010

Year	Job characteristics	
	Employees	Self-employed
2010	10,800	8,960
2005	6,660	7,000
2000	8,400	7,360
1990	9,690	7,500

2.5. All ONS data relates to the Standard Industrial Classification (SIC) Codes for 02100 (Silviculture and other forestry services), 02200 (Logging) and 02400 (Support services to forestry). The SIC code under which each business is allocated is a voluntary declaration by the business and is thus open to interpretation. For example, there is no separate SIC code for arboricultural businesses and, whilst it is expected that they would register under 81300 (Landscape service activities), in reality many will register under one of the forestry codes.

[5] https://www.forestry.gov.uk/forestry/infd-7aqdgc
[6] ONS User requested data, provided 21/09/17
[7] http://foresteurope.org/state-europes-forests-2015-report/

Employment

2.6. Total employment numbers for England and Wales derived from the ONS Business Register and Employment Survey[8] (BRES) appear in Table 2. BRES includes self-employed workers as long as they are registered for VAT or Pay-As-You-Earn (PAYE) schemes. Self employed people not registered for these, and Government Supported trainees, are excluded. Rounding up or down is applied.

Table 2: Total Employment in Forestry in England & Wales 2009 - 2015 (BRES)

Business Register and Employment Survey : open access			
ONS Crown Copyright Reserved [from Nomis on 20 June 2017]			
Date	**02100 : Silviculture and other forestry activities**	**02200 : Logging**	**02400 : Support services to forestry**
ENGLAND			
2009	6,000	300	1,750
2010	6,000	350	1,750
2011	6,000	450	1,750
2012	6,000	500	1,500
2013	6,000	350	1,750
2014	6,000	500	2,000
2015	8,000	900	3,000
WALES			
2009	1,000	75	125
2010	1,000	100	150
2011	1,000	125	175
2012	1,500	175	350
2013	1,750	150	175
2014	1,500	400	350
2015	1,000	250	250

2.7. In order to obtain an indication of total employment numbers, including self-employed persons not registered for PAYE or VAT, a bespoke query was requested from the ONS (see Appendix IV). This data is provided in Table 3 and Appendix II.

2.8. There are significant discrepancies between these two data sources beyond what might be expected from differences in scope. Reasons for this could include relatively small sample sizes leading to sampling error, varying interpretation of the SIC Code definitions between surveys, and businesses and the self-employed allocating themselves to different Codes.

[8] Nomis Date Accessed 20/06/17

Table3: Total Employment in Forestry in England & Wales 2014 - 2016 (APS)

	02.10 Silviculture and other forestry activities	02.20 Logging	02.40 Support services to forestry
ENGLAND			
2014	4010	3532	9180
2015	6330	3582	7558
2016	5412	5129	6857
WALES			
2014	385	605	1172
2015	254	1202	1191
2016	749	399	1101

2.9. In addition to the job numbers outlined above, the forestry sector in England and Wales provides feedstock for a wide variety of businesses producing wood based products including sawn timber, wood panels, paper and pulp. In 2016 these industries employed 116,000 people in England and Wales, of which 15,575 were employed in primary wood processing (i.e. sawmilling, panel production, paper production)[9].

Skills

2.10. The ONS bespoke query (2.7) provided data relating to skills levels categorised according to highest level of qualification held. The sample size precluded complete reporting of the data but the figures available are included in Table 4. For comparison, the data from a Lantra report[10] is included in the table.

Table 4: Level of highest qualification held

Level of highest qualification held	ONS 2014 – 16	Lantra 2009 – 10
1 NQF Level 4 and above	28%	33%
2 NQF Level 3	22%	20%
3 Trade apprenticeships	0%	n/a
4 NQF Level 2	9%	21%
5 Below NQF Level 2	12%	20%
6 Other qualifications	4%	n/a
7 No qualifications	0%	6%

2.11. Current skills levels within the sector have been the subject of extensive discussions with employers and stakeholders across England and Wales. These discussions covered all levels including contractors, supervisors and managers, and both technical and business skills. The outcomes of these discussions are summarized below and, whilst it would be incorrect to say that there is agreement on all issues, there are sufficient common threads throughout the responses in order to indicate that there is a broad consensus.

[9] Business Register and Employment Survey (accessed 30/10/17).
[10] Sutcliffe, R., Pounds, R., Albrow, H., Binnie, B., Nockolds, I., 2011. The Trees and Timber Industry in Great Britain. Lantra, Stoneleigh, Warwickshire

2.12. Whilst a number of significant issues have been raised by employers and stakeholders during the survey phase, the overall feedback is that the sector is in a better position than it was some years ago. Employers considered that both the availability and suitability of staff had improved in that time, and that their ability to address shortcomings had also increased. Reasons for this focused around availability of funding for training, the improved financial prospects for the sector which meant employers could offer increased rewards and thus attract and retain better quality staff, and the cumulative effect of individual initiatives such as the RFS Careers Portal, Modern Apprenticeships and Woodland Heritage 'From Woodland to Workshop' training course.

2.13. The factor which tends to produce the great variety in responses tends to be the location of the respondent. In general terms, the issues highlighted by those working in lowland areas differ, if only in emphasis, to those working in the uplands. The obvious difference between these areas is the resource, with the uplands dominated by larger, more commercial, primarily softwood forest resource, whereas in the lowlands it is smaller in scale and more varied in species, objectives, and ownership. There are, however, other differences between these areas which are not necessarily forest sector specific but nevertheless impact on the ability of employers to recruit and retain skilled staff. In particular, the cost and availability of housing in the South East of England was cited as a barrier to businesses and organisations being able to employ forestry staff, given the relatively low level of wages in the sector.

2.14. There were a number of other 'social' and 'political' factors mentioned which, whilst not directly related to skills, do affect how they are acquired and maintained. In essence these factors relate to reducing mobility within the workforce, caused by social changes such as the need to consider partners' careers, schooling etc., and devolution which is resulting in the break-up of the sector's biggest employer, the Forestry Commission, and also differentiation between regulatory and support mechanisms which can make it more difficult for employees to move between countries. Most employers considered that as a result, there was less movement of staff and therefore a lessening of experience from other locations and employers. This tended to emphasise the situation in areas where there was an aging workforce (as few people moved in to replace them) and a reduction in the ability for internal training (e.g. mentoring) as experience narrowed.

2.15. One of the sub-sectors which shows greatest variance across England and Wales is the harvesting sector. Employers in areas with a forest resource capable of being harvested mechanically reported significant investment in machinery in recent years and in the skills needed to operate this machinery. Whilst employers reported ongoing shortages of skilled machine operators, the degree of shortfall which was commonplace a few years ago appears to have reduced, although there is little or no spare capacity. However, as the demand for timber and prices have increased, so has the ability to mechanically harvest in smaller woodlands with more difficult access, mixed crops and a need for thinning rather than clear fell. Managers in these areas, such as South East and South West England, did report a significant shortfall of machine operators who had the necessary skills and aptitude to successfully operate in such areas, to the extent that it was limiting harvesting activity.

2.16. Even in areas where shortages of machine operators are not serious, there is a widely held view that operator skills could be improved in order to optimize outputs and reduce costs in site management. In particular: -

2.16.1. The example of Scandinavia was quoted, where harvester operators commonly achieve 2500 hours per annum, whereas in the UK the average is nearer 2000 hours. This leads to an increase in the overall demand for both machines and operators and consequent unit cost for harvesting operations. Where skills – as opposed to other factor such as pay - has a role to play in achieving this increased performance is less clear but it is reasonable to assume that a highly skilled operator is able to operate for longer hours with reduced stress and danger levels than an unskilled one.

2.16.2. Operators awareness of and ability to engage with environmental protection and health and safety issues was frequently cited as an area where improvements could be made, with many managers considering that their input to harvesting sites – and thus their supervision costs – could be significantly reduced if machine operators were more competent in these areas.

2.16.3. Taking this issue slightly further, a number of managers cited the example of the Scandinavian model where machine operators were effectively Forest Technicians, able to undertake a wider range of both technical duties extending to site supervision, machine maintenance and setting up information technology applications. This grade of employee, or the structure within which to train people to such a level, does not exist in the UK and would require significant investment in order to achieve it. It would also have implications for the current accepted model of site health & safety management and the respective roles of Forest Works Manager, Forestry Works Supervisor and Contractor's Site Safety Co-ordinator[11].

2.17. Many managers in lowland areas in particular, referred to the longstanding and ongoing shortage of chainsaw operators with the required skills to operate in smaller, more challenging woodlands, or to fell large hardwoods the value of which could be significantly affected by incorrect felling. This sub-sector is one where age is reported to be a serious issue, with most experienced hardwood fellers coming towards the end of their working lives and with very few younger people willing or able to replace them. It is in these manual operations where perceptions of forestry as being hard physical and potentially dangerous work remain to the greatest degree and impact on the sector's ability to recruit young staff.

2.18. At the other end of the forest lifecycle, shortages of skilled and experienced planting labour were widely reported, especially in Wales. The general collapse in woodland creation[12] in the last few years means that this problem is not as acute as it might otherwise be, but many managers commented that should planting rates increase significantly in future years the absence of skilled labour could become a serious hurdle to achieving targets. This is one area in which staff from the European Union was considered to be important, and thus restrictions on the availability of such labour could worsen the situation. It was accepted that whilst planting is not a highly skilled task, in order to achieve cost effective woodland creation which resulted in good quality woodlands in the decades to come, labour needed to be familiar with a range of issues around plant handling, planting techniques, basic soils and species knowledge (e.g. being able to make decisions about the individual positioning of plants depending on site conditions at a micro level). Given that most forest scale planting takes place in rural areas, it was thought that there should be opportunities to train up farm workers who had experience of outdoor work and for whom

[11] See FISA Guidance on Managing Health and Safety in Forestry (2014)

[12] http://www.confor.org.uk/news/latest-news/government-seven-years-behind-tree-planting-targets/

additional seasonal work would be a useful source of income at what could otherwise be slack periods.

2.19. The current profile of forest managers was discussed with employers and stakeholders. Most considered their current cohort to be 'fit for purpose' but noted that this was not a situation which arose readily. A contrasting view was held by some interviewees who although small in number were in senior positions in the industry and were perhaps in a position to have greater oversight of the sector. There was also a discernible difference between employers operating in commercial timber producing areas many of whom reported difficulties in recruiting adequate numbers of staff with the necessary skills. It was remarked that it is this part of the sector that arguably has the greatest scope for growth at the present moment and frequently generates the income which pays for other forest based activities.

2.20. Training provision is discussed in Section 4 but in summary most interviewees considered that HE graduates had few of the 'practical' skills which they wanted as employers. This related not only to actual experience of manual operations such as planting, felling etc., but skills such as mensuration, soil identification and GIS. A number of large woodland creation schemes in recent years had uncovered the lack of experience and skills in requisite topics such as site assessment, soils and grant applications. Many considered that it was not realistic or appropriate to expect HE graduates to have such skills, and that in this respect little had changed in the time since they themselves had graduated, but most thought it would be highly beneficial for staff to have at least an understanding and appreciation of such matters, which employers could themselves build on.

2.21. In addition to these skills, employers were increasingly finding that they were expected to offer an enhanced range of professional services in order to meet the expectations of clients, regulators and voluntary certification programmes. Skills in ecological protection, water management and infrastructure (roads, drains etc) were cited as examples of activities which forest managers were increasingly expected to undertake as demands grew on them whilst at the same time needing to reduce costs.

2.22. The issue of 'business skills' was also raised by most employers, with younger staff seeming to have little or no preparation for work, and poorly developed skills in areas such as dealing with clients, working with stakeholders, contract management, health & safety, office IT skills and report preparation. This perhaps relates to the differing views held by some senior managers in the sector who, as previously highlighted, hold differing views on the suitability of professional staff. They reported concerns over the general aptitude of people entering the sector, with an absence of potential 'leaders of the future' and a lack of innovative and ambitious thinking.

2.23. Despite these issues, employers had found that in recent years they had been able to recruit adequate numbers of forest managers and that by instigating programmes of training and development in their early years had created teams which satisfied their current work needs. Retaining staff was a concern for many, as the increased level of harvesting in particular meant that companies were having to offer enhanced salaries and terms to attract the necessary workforce. Many employers were looking to the public sector as a source of staff, with some reporting this as their main source, and some in the public sector, especially in Wales, stating this was a cause of significant loss of skilled and

experienced staff. The causes of this were considered to be, in part, the restraints on public sector pay and introduction of less attractive terms and conditions (e.g. pensions) at a time when the private sector was having to improve its offer, and issues such as structural changes (e.g. the formation of Natural Resources Wales) and the introduction of new grant schemes (e.g. Countryside Stewardship) which public sector staff did not find rewarding to work on.

2.24. One specific issue that was raised by a number of employers was the number of HE graduates who were setting up as contractors and yet failed to offer an enhanced level of service to their clients (such as management planning and grant applications) which as graduates they were trained to do and were capable of undertaking. This was thought to be both a missed opportunity for the sector to offer a more integrated supply chain, with lower attendant costs, and a waste of the potential of and resource invested in such people.

2.25. Although outwith the scope of this study, a number of stakeholders commented on the apparent knowledge of forest managers with regard to opportunities for 'non-core' activities, such as diversification, social enterprises and timber processing, which limited their ability to 'add value' to their services and maximise the benefits of the woodlands in their care.

Age

2.26. The average age of the forestry workforce has been a concern of the sector for a number of years although there is little statistical data to confirm this. The bespoke query from the ONS (see 2.7) did not provide any useable data due to the sample size being too small to provide reliable data. This may have been caused by the age bands being defined as 5 years and a wider band (10 years +) might provide useable data.

2.27. Data provided by the UK for the State of Europe's Forests 2015 Report (see 3.4) profiled two broad age ranges (15-49 and 50+) over the period 1990 – 2010. This data did not indicate a significant aging in the workforce over this period, although the wide age bands may have had the effect of disguising this.

2.28. LANTRA (2011) provided data on workforce age breakdown which indicated that the proportion of workers peaked in the 33-44 age band in England (37%) and 25 – 34 age band in Wales (28%). In England, 41% were 34 or under, in Wales 50% the same age. However, this data was obtained from the Labour Force Survey for only one year (2009/10) and it can be seen from data in Table 3 that this data can vary significantly between years, meaning that data from a single year should be treated with caution.

2.29. Institute of Chartered Foresters data indicates that the average age of members in England and Wales who gave a forestry related activity as their primary employment was 48. There is a distinct difference between the average age of male and female members, at 49 and 41.5 respectively.

2.30. Employers were asked about their views on average age and any changes since the LANTRA report was published. Most respondents considered that, in that time, a larger number of young people had entered the industry leading to a reduction in average age. The same employers also recognised that a relative worsening in the industry's economic performance in the late 1990's for a period of ten to fifteen years had led to both losses from the industry and a reduction in recruitment. This means that the workforce is now characterised by a relative scarcity of people in mid-career, with implications for succession

in small businesses and recruitment to middle and senior management levels in larger businesses and organisations.

2.31. Notwithstanding the above narrative, there are parts of the sector which clearly have an age bias, such as chainsaw operators capable of felling larger, quality broadleaves, most of whom are reported as being '50+'. There also appears to be some anecdotal evidence of a geographic bias, with more younger people entering the sector in areas with a higher proportion of mechanized productive forestry.

Gender

2.32. Data on gender within the industry at an England Wales level is limited. Lantra (2011) reported that 93% of the GB workforce was male and 7% female. The UK data for the State of Europe's Forests 2015 indicated it as 9.3% female.

2.33. For the reasons regarding sample size given in 2.8, the ONS bespoke query omitted size estimates for female numbers within individual SIC Codes. However, by totaling male employee numbers in both England and Wales as a % of total employee numbers it is possible to estimate that in the years 2014 – 16 the relative percentages were 78% male, 22% female. A significant proportion of the female numbers were allocated to 02400 Support Services to Forestry.

2.34. Interviews with employers provided anecdotal evidence that female numbers were not increasing noticeably across the sector. Reasons offered for this related to the overall image of the forestry industry and the perceptions of young people, parents and teachers as it being overly physical and not a 'forward thinking' sector.

2.35. Data from the ICF indicated that 90% of members in England and Wales who gave their primary employment as being forestry related were male. There is a marginally higher (13.8%) proportion of female Associate members who would be expected to be at an earlier stage of their careers.

2.36. Analysis of first year students at Bangor University and The University of Cumbria indicates that over the period 2007/08 to 2015/16, undergraduates were 74% male and 26% female. There was no distinct trend during this period, with perhaps a slight falling off in female numbers in recent years.

2.37. The discrepancies between females starting undergraduate courses and in forestry employment could be explained by a number of factors, but the most likely are include a higher proportion of females in professional and managerial roles and a greater attrition rate for female graduates.

Diversity

2.38. Lantra recorded the sector as being 98% white and 2% non-white in Great Britain in 2009/10. The ONS bespoke query averaged 99% white and 95% UK British nationality in the period 2014-16.

2.39. The HESA data supplied underlined this information, with a total of 10 out of 1340 first year students at Bangor University and the University of Cumbria over the period from 2007/08 to 2015/16 being of Black or Minority Ethnic origin.

2.40. Employers were not asked about diversity as such, but the use of migrant labour was discussed and, in particular, the potential impacts of the UK exiting the European Union. In

general the likely impact was thought to be limited overall as migrant labour did not constitute a significant proportion of the workforce, although there are exceptions in some sub-sectors e.g. nurseries (outwith the scope of this report) and planting. One respondent in the south of England considered there had been a noticeable intake of female EU nationals in management roles in the area in recent years.

Business Area

2.41. The ONS collects data on workforce numbers allocated to a classification of occupations common to all industry types. Once again the sample size within the ONS bespoke query was too small to provide definitive data, although by summing it up across England and Wales it is possible to provide an indication of percentages in each occupation (Table 5). It should be noted that the percentages do not add up to 100% due to the lack of data in certain category fields. The GB data from the Lantra 2009/10 report is included for comparison.

Table 5: Workforce Occupational Classification %s

Occupational Level	ONS 2014 – 16	Lantra 2009 – 10
1 1 'Managers, Directors And Senior Officials'	7%	6%
2 2 'Professional Occupations'	7%	5%
3 3 'Associate Professional And Technical Occupations'	6%	6%
4 4 'Administrative And Secretarial Occupations'	6%	4%
5 5 'Skilled Trades Occupations'	34%	21%
6 6 'Caring, Leisure And Other Service Occupations'	0%	<0.5%
7 7 'Sales And Customer Service Occupations'	0%	3%
8 8 'Process, Plant And Machine Operatives'	1%	24%
9 9 'Elementary Occupations'	13%	31%

3. Current training provision

Overview

3.1. A wide range of training and provision is available to the forestry sector in England and Wales, ranging from short vocational courses through to full time postgraduate degrees. There are numerous providers, offering both formal (i.e. leading to a qualification) and informal (i.e. non-assessed) courses. The availability of statistics relating to training varies according to level.

Higher Education

3.2. Courses at Higher Education level include first degrees and foundation degrees. It includes any qualification at Level 4 and above.

3.3. A search of the UCAS database for courses for 2018 entry with 'forestry' in the title indicated 14 courses at undergraduate level in England and Wales (although 5 of these were the same course offered with a 'sandwich year'). There were no courses offered with part time provision at the time of the search.

3.4. A search of the UCAS database for taught postgraduate courses with 2017 entry indicated 14 courses, although most of these differed in mode of study only (i.e. full or part time) with only 5 academic courses offered.

3.5. A list of HE undergraduate and postgraduate courses with forestry in the title is included in Appendix III.

3.6. Current levels of student numbers at Higher Education level has been investigated through interrogation of the HESA database. This includes all undergraduate and postgraduate courses which feature under the D5 Joint Academic Coding System (JACS) which covers Forestry and Arboriculture and thus will include courses not included in the numbers given above.

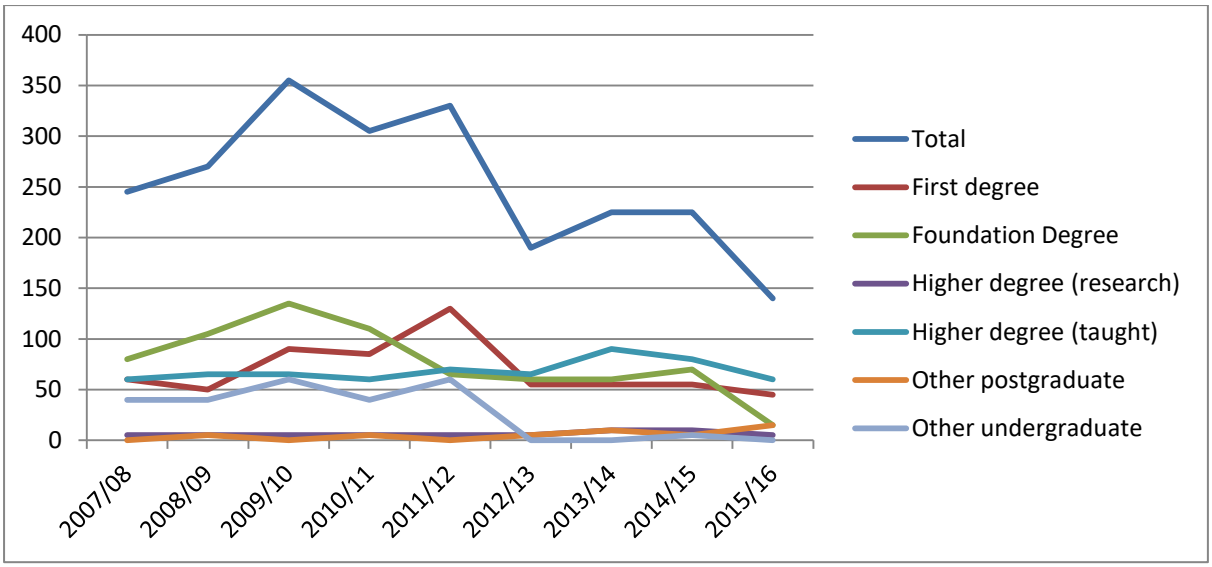

Figure 1: Higher Education Forestry & Arboriculture Students by Type of Degree and Academic Year (England & Wales)

3.7. It should be noted that a number of graduate roles employed in the forestry sector will not have a forestry related degree. Anecdotal evidence provided by employers indicates that this is increasingly the case, with for example, Geography graduates entering the sector after a period of employment in related industries and being provided with supplementary training by the employer. Most employers thought the ability to do this was a strength and provided diversity of ability and background experience to the sector.

Further Education

3.8. Further Education includes any study after secondary education which is not Higher Education. It includes National Vocational Qualifications (NVQs), Apprenticeships, Certificates and Diplomas at Levels 1, 2 and 3. It tends to be more local in provision and reflect the nature of the forest resource in the catchment area of the college.

3.9. A search on the National Careers Service website[13] indicated in excess of 100 courses at Level 3 in England provided primarily by Further Education Colleges. There are 5 colleges in Wales offering Further Education courses including an element of forestry. Data on student numbers etc was not available at the time of writing. However, very few of the courses were focused entirely on forestry, with the great majority being combined with another subject, most commonly Arboriculture.

3.10. The Royal Forestry Society (RFS) currently offers standalone theory qualifications at Level 2 in Arboriculture and Forestry. The RFS also runs a certification programme that acknowledges a combined accomplishment of theory and practical elements within the sector. The RFS is currently working to develop and increase its suite of theory qualifications with a range of industry partners.

3.11. Trailblazer Apprenticeships were launched after a government review in 2012 found sectors where improvements were required to the existing standards. Forestry is part of the Trailblazer programme under which new Apprenticeship Standards are developed and approved.

3.12. A Level 2 Forest Operative Standard was approved for Apprentices starting after 1st May 2017. The qualification is made up of 'Core' and 'Optional' Awards. Up to £12,000 is available to the Apprentice to spend on training which leads to awards required to meet the Standard. For employers with less than 50 employees, funding can represent 100% of the training and assessment costs.

3.13. Industry is being consulted on the demand for higher-level apprenticeships. If demand can be proven to exist, a new Standard may be created which addresses the need for a supervisory-level Standard.

3.14. There are a large number of Awards in technical skills relating to forestry, many of which are common to arboriculture and related industries. A search on the Lantra Course Finder found 68 individual courses which relate in some respect to forestry and arboriculture. Each of these Awards is offered by a range of providers. The Level 2 Award in Chainsaw Maintenance and Cross Cutting, for example, is offered by 75 training companies, organisations and colleges across the UK.

3.15. A list of FE forestry or forestry related courses is provided in Appendix III.

[13] https://nationalcareersservice.direct.gov.uk/course-directory/home

Informal Training and Continuing Professional Development

3.16. There are a large number of organisations offering informal training in forestry across England and Wales. These range from training courses which do not offer any accreditation through to awareness raising events and workshops offered by the various trade and professional associations.

3.17. The Royal Forestry Society, Institute of Chartered Foresters, Confor, Small Woods Association, Coed Cymru and numerous individual initiatives provide conferences, field trips, study tours and workshops on a range of subjects, often responding to emerging issues, such as plant health, or on areas where a particular need has been identified, such as woodland management planning.

3.18. A number of employers mentioned the ICF Forestry Learning Network (FLN) which operated in 2014-15 before funding was withdrawn due to budget cuts at BEIS. They commented that they had found the format and accessibility of this project particularly valuable and regretted its closure.

3.19. Employers also highlighted the reduction in opportunities for internal networking and mentoring due to reduced professional staff numbers and mobility within the sector as a whole. The loss of a 'mid-career' cohort had resulted in fewer staff able to support new entrants, and devolution and social issues had limited opportunities to benefit from experience elsewhere. This was arising at the same time as more non-forestry qualified staff were being recruited into forestry positions which made the inability to provide internal professional development opportunities all the more serious.

4. Appropriateness of training provision

Overview

4.1. Employers and stakeholders were asked about the appropriateness of training provision in relation to current and future needs.

4.2. Most employers had little understanding of the current system of educational awards and qualifications. Indeed this lack of understanding is a significant issue for the sector as it leads them to disengage from the formal educational system and instead fulfill their needs from more informal or ad hoc interventions.

Employer Perceptions

4.3. As indicated in Section 3, employers found that recruits coming from Higher Education Institutions had less understanding of practical issues than they expect or require. Employers considered that as an essentially practical subject, forestry graduates should be expected to study and have a good knowledge of basic subjects such as silviculture, mensuration and soils. Instead they found that they were better versed in more theoretical and strategic issues which had little application in small companies in particular.

4.4. A number of employers expressed a preference for and/or particularly good experiences with graduates who had a more rounded qualification and experience. This appeared to apply mainly in lowland areas where forestry was more frequently incorporated into wider land uses, and having a forester who understood other land management practices and uses was valued by clients in particular. The impact of leaving the European Union and a more integrated approach to land management was also cited as a basis for this view.

4.5. There appears to be limited formal engagement between colleges and employers. Whilst a few had, or had trialed, industry liaison groups, it was not functioning on the ground. Employers largely appreciate the pressures under which Higher Education colleges operate, in terms of budgets and the need to recruit students onto courses in order to make them financially viable, but were nevertheless keen to work with colleges to offer advice on syllabus development, offer field trips and ‘guest lectures’, and to identify opportunities for work placements which could provide students with the practical experience employers valued highly.

4.6. Perceptions of vocational training were mixed, with many employers utilising trainers over a long period and considering them to be excellent, whilst others expressed frustration at the lack of trainers with the necessary technical and training skills. FE Colleges in particular were not considered to provide vocational training to the necessary standard. Employers thought there were too many of them trying to provide too many courses, which led to a shortage of experienced staff and low student numbers. Many employers thought that fewer, more specialist colleges would be a better outcome for the forestry sector.

4.7. There is a perception that many trainers do not have significant direct experience of the industry in a commercial environment. It was possible for trainers to meet the technical competencies required by the relevant standard, but if they did not have extensive experience in the field they were often perceived as being unaware of the pressures which operators worked under ‘in the real world’. One suggestion was that skilled craftspeople

that were nearing the end of their work career could be retrained to be trainers themselves, thus imparting a lifetimes experience to trainees.

4.8. Few employers had direct experience of Apprenticeships, although most expressed support in principle for them and a need for higher skills levels within the workforce. Apprenticeships are perceived as being relatively inflexible and bureaucratic, and not suitable for smaller companies especially. The lack of time available for owners and managers in small companies to focus on the needs of apprentices, to undertake the requirements of the system, and limited scope for full time permanent positions was considered to be a major barrier to taking on more new recruits. This industry specific view was reflected in a recent survey[14] by the British Chambers of Commerce, which found that two thirds of companies under the Apprenticeship Levy Threshold 'said they had not taken steps to use the funds or simply did not know about it'.

4.9. Many employers expressed a desire for public bodies such as the FC, NRW and local authorities to run Apprenticeship schemes from which apprentices would move out into employment elsewhere once completed. There are examples of organisations hosting group apprenticeship schemes in land management although not in forestry specifically.

4.10. Employers valued the opportunities provided by informal training and, in particular, considered this to be a significant means by which graduates could gain valuable insight into practice across a broad range of situations, and provide for continuous professional development for all staff in areas such as plant health, technology and new grant schemes and regulatory requirements.

4.11. A number of employers raised the issue of working with other land management disciplines in order to raise the profile of land based professions and to present a unified voice to government and policy makers, with an impact which may not be possible for the forestry sector on its own, given employment numbers. The closure of the FLN was cited as an example of where the industry may not have been significant enough to tackle a government department which had little awareness of the sector.

Training Providers

4.12. Training providers were interviewed on a range of subjects. This included Higher Education institutions and vocational trainers.

4.13. In the main, HE staff are clearly conscious of the need to provide graduates who have the skills expected of them by employers. They value links with industry and would welcome these being strengthened. They recognise that they are not always able to provide the depth of skills and knowledge required and with certain subjects, in particular technical skills, would welcome input from industry in order to achieve this. Pressures in relation to funding, student numbers and educational systems mean that flexibility is limited but within these constraints, HE institutions need input from the sector in developing course syllabus and offering 'real world' experience.

4.14. Notwithstanding the above, there was one differing view expressed which was that Universities in particular are academic institutions and not, in themselves, places of work training. Universities are increasingly rated according to the value of their research work

[14] British Chambers of Commerce Workforce Survey 2017

and this was not always compatible with providing the skills necessary for an applied science or vocational career such as forestry.

4.15. Vocational trainers had experienced an increase in demand for training in recent years caused, in part, by the improved economic situation in forestry, and in part, by the availability of funding through the EU Rural Development Programme. Although this funding was still available in Wales, its demise had led to a noticeable reduction in demand in England which trainers expressed frustration with.

4.16. Trainers also commented that whilst new entrants were often put through the necessary training courses, older workers rarely undertook the update and refresher courses which they considered were necessary to maintain safety standards and best practice in the industry.

4.17. Concern was expressed regarding Modern Apprenticeships and the ability of FE Colleges to provide the learning opportunities which students needed, although none had experience of the new Trailblazer Apprenticeship which provided enhanced funding and thus, in theory, more and better training.

5. Routes to employment and career progression

Overview

5.1. Compared to previous decades, routes to employment in the forestry sector are relatively numerous and informal. Employers interviewed were increasingly finding that staff were coming to them from a range of backgrounds. In most cases this, whilst difficult at first for them, was valued by employers who found benefit in a range of skills and experience.

New Entrants

5.2. Most employers still considered that there was a shortage of new entrants coming into the sector due to incorrect perceptions of the industry. This particularly impacted on supervisory and management roles, and in the recruitment from sections of the community who were not currently well represented in the forestry workforce. Employers thought that many pupils, careers advisors and parents viewed forestry, if at all, as not technologically advanced or innovative, with little scope for promotion and reward.

5.3. There was a particular shortage of new entrants at graduate level in some cases. Employers reported advertising on a number of occasions for forestry graduates and receiving few, if any, applications. Two explained that, on redrafting the essential criteria and job advert so that it included non-forestry graduates, a significantly improved response was achieved. There is evidence that this problem occurs more frequently, though not exclusively, in areas where the primary activity is commercial forest management i.e. softwood harvesting. It is these employers who tend to have the greatest requirement for a 'pure' forestry graduate and also where, due to the current level of activity in the industry, there is the greatest demand for staff. Employers reported having to improve remuneration packages to attract staff and that often they were 'poaching' them from other employers – which worked both ways.

Managers and Supervisors

5.4. Compared to the traditional route of a forestry degree or diploma, forest managers were being taken on with a range of qualifications and experience. In some cases this was out of need, in that suitable forestry graduates were just not available, whilst in other cases it was because these new entrants offered a wider range of skills or particular attributes which the business required. Nevertheless these new entrants lacked a range of core forestry skills and required training in them which, in some situations, could be provided by employers but in the case of smaller companies was not always possible.

5.5. A small number of employers raised the potential of rather than taking on graduates who might not have the necessary attributes, taking on school leavers who could be put through a suitable programme of theoretical learning (Higher Apprenticeship, distance learning Foundation Degree etc) whilst gaining practical experience within the company. In this way employers could ensure employees had the appropriate knowledge and skills for their situation (geographic, work type etc) whilst being able to achieve this in a cost effective manner.

5.6. Employers generally recognised the benefits of employing people who had come to forestry later in their work career and had developed 'life skills' which younger recruits might not have. This was considered particularly valuable in smaller companies and where it was necessary to have good interpersonal skills whilst working with clients, contractors and stakeholders.

Contractors

5.7. There is a less obvious career path for people entering the contracting sector with recruitment tending to be more by word of mouth and focused on an individual's ability to undertake the practical tasks required, rather than possession of any particular qualification, other than the necessary 'tickets'. Frequently they started with an employer before or whilst at an FE college and continued with them afterwards. The next step was frequently self-employment rather than moving to another company, which was a source of frustration to many employers as it seemed to them that they invested much time and money in training up staff only for them to leave and, in effect, become a competitor. It is clear that the average size of the forestry contracting business in England and Wales is too small to retain ambitious and forward looking young recent entrants who perceive self employment as the only route to betterment.

New Entrants and Students

5.8. A discussion group with recent entrants at graduate level indicated that they were broadly pleased with their chosen career and that it offered them what they wanted. None had any family connection with forestry and had found out about forestry as a career mainly by accident, for example as a result of visiting a forest as a child or observing forestry abroad on gap years. None had come across it as a result of careers advice at school. A number had intended studying other subjects but changed to forestry before starting university after hearing about it and being attracted by what they perceived as a more applied 'work ready' subject. They thought that the courses they took were a in the main a good academic basis for their careers but did not provide them with the practical knowledge which their new employers required of them. Careers advice whilst at university was not readily available. After graduating a significant proportion returned to an employer who they had worked for in a sandwich year. They would all like opportunity to network with other recent entrants in the geographic area as they felt relatively isolated in professional terms.

5.9. Students at HE Institutions reported a similar situation with regard to how they came to forestry as a potential career. None had family ties but, other than that, there was no clear path, with volunteering, friends and broader initial studies (e.g. countryside management) included in the pathway to studying forestry. The reaction from teachers and family was mixed, with a discernible negative trend amongst some who viewed forestry as dangerous, poorly paid, environmentally unsustainable and simply 'not good enough'. Some however were pleased that the student had identified a career they were passionate about and had obtained a place on a course at university which had a clear outcome. For the students themselves, the lack of degree level courses was an issue as it left few options in terms of which institution to go to, which was often a significant distance from home. They had only a basic understanding of what the forestry sector was really like and what sort of

employment it could offer them. The need to move around the country in order to get a job and advance their careers, plus the lack of females in the sector, were also cited as concerns. In terms of expectations, the single largest feature was a desire to work in a sustainable industry which had a positive impact on the environment and could provide them with a meaningful job.

5.10. FE students interviewed had also come to forestry from a variety of routes, although a greater proportion were aware of it as a result of living in a rural area and visiting through school or work experience. None had direct family links to forestry but perceptions of forestry as a career by family was more positive in this relatively small group. Most were very focused on getting a job as soon as possible, with a significant majority wanting to work in arboriculture which they perceived as having more opportunities. Only one was clear about wanting to work in production forestry.

6. Recommendations

6.1. The following recommendations arise from the findings of this study and are intended to inform the preparation of the Skills Action Plan.

Issue/Opportunity	Outcomes for the Sector	Action
1. Attractiveness of the forestry sector to school leavers as a careers option	A wider range of recruits for the industry at all levels. Increased competition for college places will encourage institutions to invest in provision whilst raising the academic bar to entry thus providing higher calibre entrants.	Continue to promote forestry as a career through existing mechanisms, in addition identify more young new entrants who are willing to act as 'ambassadors' for the sector and provide them with the means (e.g. social media channels, access to schools, careers fairs etc) to promote forestry as a career.
		Explore opportunities to introduce forestry into the National Curriculum (through e.g. Geography and Biology) in order to make pupils aware of forestry as an industry at an earlier age. Work with other land based sectors to achieve impact on educational and skills agendas within government.
2. Encourage more female school pupils to consider forestry as a career option	As above, plus having an improved gender balance will provide scope for a greater range of skills and competencies and improve the overall image of the sector.	Focus on identifying young female new entrants to undertake activities as above and identify particular avenues for promotion to female school pupils.
3. Improve college provision at Further Education level	More competent new entrants with a wider range of skills relevant to the sector in their area, better informed about the modern forest industry and the opportunities available to it.	Identify FE colleges with good quality provision and seek to improve industry liaison. Consider setting up a network of 'centres of excellence' in FE provision with appropriate levels of geographic coverage and focus on these.
4. Improve liaison at Higher Education level	Graduates with a greater range of skills appropriate for the industry and a better understanding of the sector. Improved 'work readiness' (especially for smaller companies) and business skills.	Ensure each HE provider with forestry provision has access to an industry liaison group either at a local or national level which can (i) advise on curriculum and syllabus development (ii) provide opportunities for field trips and practical exercises that reinforce academic learning (iii) identifies where 'guest lecturers' may be available to provide skills and knowledge on particular areas (iv) identify potential for industrial placements, sandwich years and holiday work which provides practical experience
5. Increase awareness of Trailblazer Apprenticeships and extend higher provision	Better trained and more competent forest operatives and supervisors able to undertake a wide range of tasks with minimal supervision.	Promote Apprenticeships to companies and organisations throughout the forestry sector, using examples of existing apprentices and the benefits that have accrued to their employers.
6. Investigate ways in which small and micro businesses	As above, whilst extending the benefits to a wider range of companies with a greater geographic	Investigate group schemes such as that provided by the FC and some national park authorities whereby an employing organisation takes on

Issue/Opportunity	Outcomes for the Sector	Action
can take on apprentices	coverage.	responsibilities around trainee wellbeing, health & safety, mentoring etc whilst providing work experience in smaller companies.
7. Improve and extend Machine Operator Training provision	Build the resource of machine operators across England and Wales able to undertake a greater variety of work in a variety of situations.	Support Machine Operator training both as a standalone provision and through apprenticeships and other FE courses. Extend provision to more marginal types of forests e.g. scale, thinning operations, mixed species etc.
8. Investigate scope to develop 'Forest Technician' grade	Creation of a new grade of employee able to undertake wide range of duties including aspects of site supervision thereby reducing costs and increasing viability of forest operations.	Investigate need for and viability of a 'Forest Technician' grade, initially on an informal basis but with a view to formalising this through appropriate structures e.g. higher grade apprenticeships.
9. Improve technical skills of new entrants and mid-career forest managers	Forest managers with higher skills relating to technical matters e.g. soils, GIS, mensuration and an ability to apply these to work situations.	Investigate further the range of technical skills required by employers of new entrants and mid-career forest managers and create CPD programme to fulfil needs.
10. Investigate means to increase numbers of skilled planting contractors	A supply of skilled and experienced planting contractors able to undertake planting contracts on a seasonal basis.	Consider means of training workers in areas where significantly increased tree planting may occur (e.g. uplands post Brexit) in basic tree planting and establishment skills, the creation of a register or list so that contractors can recruit according to seasonal need.
11. Consider ways in which to involve experienced operatives in training provision	New entrants with a better understanding of the practicalities of site work and the outputs expected in a commercial situation. Better retention of the skills and knowledge in older generations.	Investigate ways in which experienced operatives could be trained up as trainers and provide or support provision of training in practical skills.
12. Consider ways to develop informal professional development within and between organisations and companies	Greater sharing of skills amongst new entrants and experienced staff in a relatively low cost manner, reduction isolation caused by structure of the sector, support for non-forestry qualified staff.	Development of professional development networks, create discussion groups and other informal learning opportunities, ensuring a mixture of experience, ages, work types etc.
13. Improve understanding of the educational system amongst employers	Greater understanding between educational providers and employers of the types of educational qualifications and what it means in practical terms and expectations for new entrants abilities.	Provide summary information on up to date educational qualifications, courses etc. to employers with 'real life' examples of what to expect from new entrants with these qualifications and 'demystify the jargon'.
14. Retain and improve funding for generic and vocational skills in 'post-Brexit' rural funding	Skilled employees for forestry businesses and organisations with a broad knowledge of forestry operations and an understanding of the opportunities it presents for rural areas.	Work with other rural land management sectors to press government for holistic package of support for generic and vocational skills in replacement for Common Agricultural Policy funding.

Appendix I: Contributing Organisations

Employers Survey

Organisation	Contact
Abbey Forestry	Andrew Shirley Priest
Andrew Bronwin & Co	Andrew Bronwin
Bryan Elliot	Bryan Elliot
Canopy Land Use	David Pengelly
Clinton Devon Estates	John Wilding
Duchy of Cornwall	Geraint Richards
Egger Forestry	Simon Hart
English Woodlands Forestry	Andy Wright
Euroforest	David Symons
Flintshire Woodlands	Charles Gittins
Forest Enterprise England	James Simpson/Fiona Groves
Institute of Chartered Foresters	Shireen Chambers
Lockhart Garratt	Justin Mumford
Pryor & Rickett	Graham Taylor
RSK ADAS Ltd	Chris Huxley
Scottish Woodlands	Michael Hall
Stobart	Iwan Downey
Tilhill	David Edwards
Woodland Trust	Norman Starks

Stakeholder Survey

Bangor University	James Walmsley
Coed Cymru	Gareth Davies
Confor	Caroline Harrison
Confor	Martin Bishop
Forestry Contractors Association	Simon Bowes
Forest Research	Tom Jenkins
Harper Adams	Jim Waterson
Llais y Goedwig	Liz Mutch
Lynher Training	Karen Howell
Morton Training	Andrew Morton
National Forest Company	Charles Robinson
Natural Resources Wales	Alan Hunt
Natural Resources Wales	Rachel Chamberlain
Newton Rigg College	Martin Davis
Tree Skills	Scott Elborne
Small Woods Association	Ian Baker
Wood Knowledge Wales	Tabitha Binding

New Entrant Group

Edwin Thompson	Ben Anderton
Egger Forestry	Benjamin Drake
Egger Forestry	Katherine Evans-Smith
Forestry Commission	Billie-Jo Blackett
Forestry Commission	Mark Child
Forestry Commission	Luke Hemmings
Forestry Commission	Sam Huddleston

Appendix II: ONS Bespoke Tables (Example)

Office For National Statistics
Annual Population Survey
JD16
Weighted 2017
Variables used: pwta17, country, sex, ages, NTNLTY12, ETH11EW, PUBLICR, SC10MMJ, LEVQUL11, FTPT, Inecac05, INDC07M

	England			Wales		
	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
Total Numbers	5412	5129	6857	749	399	1101

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
SEX Sex of respondent	**1 Male**	4255	4634	4239	648	399	1036
	2 Female	1157	*	2618	*	-	*

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
AGES Age bands	**4 16-19yrs**	-	-	-	-	-	-
	5 20-24yrs	1329	*	*	-	-	-
	6 25-29yrs	*	1298	965	-	-	*
	7 30-34yrs	1492	950	890	-	-	302
	8 35-39yrs	*	1360	849	*	*	*
	9 40-44yrs	*	*	-	*	-	*
	10 45-49yrs	*	-	*	*	*	*
	11 50-54yrs	467	*	853	*	-	*
	12 55-59yrs	-	-	1581	*	-	-
	13 60-64yrs	*	-	915	*	-	*
	14 65-69yrs	*	-	*	-	-	-
	15 70 and over	-	-	*	-	*	-

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
NTNLTY12 Nationality	356 India	-	-	-	-	-	-
	372 Irish Republic	-	-	-	-	-	-
	586 Pakistan	-	-	-	-	-	-
	616 Poland	-	-	-	-	-	-
	926 UK, British	5412	4582	6723	749	*	847
	997 Other	-	*	*	-	*	254

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
ETH11EW Ethnic Group (England and Wales)	1 White	5412	5129	6499	749	399	1101
	2 Mixed / Multiple ethnic groups	-	-	*	-	-	-
	3 Asian / Asian British	-	-	-	-	-	-
	4 Black / African / Caribbean / Black British	-	-	*	-	-	-
	5 Chinese	-	-	-	-	-	-
	6 Arab	-	-	-	-	-	-
	7 Other ethnic group.	-	-	-	-	-	-

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
	1 Private	4928	4634	3987	749	399	774
	2 Public	*	*	2870	-	-	327

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
SC10MMJ Major occupation group (main job)	1 1 'Managers, Directors And Senior Officials'	*	*	815	*	-	-
	2 2 'Professional Occupations'	638	-	666	-	-	-
	3 3 'Associate Professional And Technical Occupations'	*	-	1167	-	-	251
	4 4 'Administrative And Secretarial Occupations'	*	-	1391	-	-	-
	5 5 'Skilled Trades Occupations'	2990	3636	1293	435	*	371
	6 6 'Caring, Leisure And Other Service Occupations'	-	-	*	-	-	*
	7 7 'Sales And Customer Service Occupations'	-	*	-	-	-	-
	8 8 'Process, Plant And Machine Operatives'	*	-	*	*	*	*
	9 9 'Elementary Occupations'	*	-	758	-	*	*

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
LEVQUL15 Level of highest qualification held	1 NQF Level 4 and above	2216	*	2032	407	*	311
	2 NQF Level 3	1719	1569	2314	*	-	271
	3 Trade apprenticeships	-	-	-	*	-	-
	4 NQF Level 2	836	*	828	-	*	*
	5 Below NQF Level 2	*	1716	1085	*	-	*
	6 Other qualifications	*	943	*	*	-	*
	7 No qualifications	-	-	-	-	-	-

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
FTPT FT or PT (all in employment)	1 Full time	4187	4634	5474	475	*	1036
	2 Part time	1225	*	1383	274	*	*

		England			Wales		
		02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry	02.10 Silviculture & other forestry activities	02.20 Logging	02.40 Support services to forestry
Basic economic activity	**1 Employee**	3554	1649	5872	294	*	609
	2 Self-employed	1858	3480	985	455	*	492
	3 Government emp & training programmes	-	-	-	-	-	-
	4 Unpaid family worker	-	-	-	-	*	-

Created on 19/09/2017 by Office for National Statistics
http://www.ons.gov.uk/

* = Sample sizes are too small to provide reliable estimates
(-) = No figures to report
Estimates are based on small sample sizes and are therefore subject to a margin of uncertainty. They should therefore be treated with caution.
Please note that these data are not Seasonally Adjusted

Appendix III: HE & FE Courses

HE Undergraduate Courses

Institution	Course	Qualification	Study Mode
Askham Bryan College	Arboriculture and Urban Forestry	FdSc (Foundation Degree)	Full Time
Bangor University	Forestry	BSc(Hons)	Full Time
Bangor University	Forestry	BSc(Hons)	Full Time / Sandwich
Bangor University	Conservation with Forestry	BSc(Hons)	Full Time
Bangor University	Conservation with Forestry	BSc(Hons)	Full Time / Sandwich
Bangor University	Geography with Environmental Forestry	BSc(Hons)	Full Time
Bangor University	Geography with Environmental Forestry	BSc(Hons)	Full Time / Sandwich
Myerscough College	Arboriculture and Urban Forestry	BSc(Hons)	Full Time
Plumpton College	Forestry and Woodland Management	FdSc (Foundation Degree)	Full Time
University of Cumbria	Forestry	FdSc (Foundation Degree)	Full Time
University of Cumbria	Forestry (Top-up)	BSc (Hons)	Full Time
University of Cumbria	Forest Management	BSc (Hons)	Full Time
University of Cumbria	Forest Management	BSc (Hons)	Full Time / Sandwich
University of Cumbria	Woodland Ecology and Conservation	BSc (Hons)	Full Time / Sandwich

HE Postgraduate Courses (Information Provided by Royal Forestry Society)

Institution	Course	Qualification	Study Mode
Bangor University	AgroForestry	MSc	Full Time
Bangor University	Forestry	MSc	Full Time
Bangor University	Forestry	PgDip (Postgraduate Diploma)	Distance Learning
Bangor University	Sustainable Forest and Nature Management	MSc	Full Time
Bangor University	Environmental Forestry	MSc	Full Time
Bangor University	Environmental Forestry	PgDip (Postgraduate Diploma)	Distance Learning
Harper Adams University	Forestry Management	MSc	Full Time
Harper Adams University	Forestry Management	MSc	Part Time (2 or 3 years)
Harper Adams	Forestry Management	PgCert	Full Time

University		(Postgraduate Certificate)	
Harper Adams University	Forestry Management	PgCert (Postgraduate Certificate)	Part Time (2 or 3 years)
Harper Adams University	Forestry Management	PgDip (Postgraduate Diploma)	Full Time
Harper Adams University	Forestry Management	PgDip (Postgraduate Diploma)	Part Time (2 or 3 years)

FE Courses

Institution	Course	Qualification
Abingdon & Witney College	Forestry	Level 2 Diploma
Abingdon & Witney College	Forestry & Arboriculture	Level 3 Extended Diploma
Askham Bryan College & Newton Rigg College	Tree Surgery & Forestry	Level 2
Askham Bryan College & Newton Rigg College	Forestry	Level 3
Bicton College	Forestry & Arboriculture	Level 2
Bicton College	Forestry & Arboriculture	Level 3 Diploma
Bridgewater College	Forestry & Arboriculture	Level 2 Diploma
Bridgewater College	Forestry & Arboriculture	Level 3 Diploma
Capel Manor	Arboriculture and Forestry	Extended Certificate Level 2
Capel Manor	Arboriculture and Forestry	Diploma Level 2
Capel Manor	Trees & Timber	Intermediate Apprenticeship Level 2
Capel Manor	Trees & Timber	Advanced Apprenticeship Level 3
Capel Manor	Arboriculture and Forestry	Advanced Certificate Level 2
Capel Manor	Arboriculture and Forestry	Advanced Subsidiary Diploma Level 3
Capel Manor	Arboriculture and Forestry	Advanced Diploma Level 3
Chichester College	Forestry & Arboriculture	Level 2
Chichester College	Forestry & Arboriculture	Level 3
Coleg Cambria	Forestry & Countryside Management	Level 3 Diploma
Coleg Meirion Dwyfor	Countryside Management & Forestry	Level 2 Diploma
Coleg Meirion Dwyfor	Countryside Management & Forestry	Level 3 Diploma
Derby College	Forestry & Arboriculture	Intermediate Diploma Level 2
East Durham College, Houghall	Forestry & Arboriculture	C&G Diploma Level 2
East Durham College, Houghall	Forestry & Arboriculture	C&G Extended Diploma Level 3
Eastern Otley	Arboriculture and Forestry	Level 2 Diploma

College		
Eastern Otley College	Arboriculture and Forestry	Level 3 Extended Diploma
Hadlow College	Forestry & Arboriculture	Level 3 Diploma
Hereford & Ludlow College	Forestry & Countryside Skills	Level 2 Diploma
Moulton College	Forestry & Arboriculture	Level 2
Moulton College	Forestry & Arboriculture	Level 3 Extended Diploma
Northumberland College	Forestry & Arboriculture	Level 2 Diploma
Northumberland College	Forestry & Arboriculture	Level 3 Subsidiary Diploma
Northumberland College	Forestry & Arboriculture	Level 3 Diploma
Northumberland College	Forestry & Arboriculture	Level 3 Extended Diploma
Plumpton College	Forestry & Arboriculture	Level 1
Plumpton College	Forestry & Arboriculture	Level 2
Plumpton College	Forestry & Arboriculture	Intensive Course level 2
Plumpton College	Forestry & Arboriculture	Level 3
Reaseheath College	Forestry & Arboriculture	Level 3 Diploma
Sparsholt College	Forestry	Level 2 Diploma
Sparsholt College	Forestry	Level 3 Extended Diploma
Warwickshire College Group, Pershore & Moreton Morrell	Forestry & Arboriculture	Level 3 Diploma
Warwickshire College Group	Forestry, Arboriculture & Tree Works	Level 3 Diploma
Warwickshire College Group	Forestry & Arboriculture	Level 3 Extended Diploma

Appendix IV: Methodology

Overview

1.1. The agreed methodology consisted of a blend of activities, utilised in such a way as to achieve the objectives of the study within the time and resource constraints. It consisted of five activities: -

1.1.1. Desktop Review & Analysis

1.1.2. Survey Design & Testing

1.1.3. Survey Implementation

1.1.4. Data Analysis & Compilation

1.1.5. Generating Findings & Recommendations

1.2. In addition to these activities, a Project Communications protocol was agreed which consisted of an Inception Meeting, Interim Meetings (one in person and one telephone conference call) and a Project Meeting to review the Draft Report.

1.3. The activities outlined in 2.1 were deployed across the objectives as indicated in Figure 1.

Activity → / Key Objective ↓	Desktop Review & Analysis	Survey Design & Testing	Survey Implementation	Data Analysis & Compilation	Findings & Recommendations
1. Assess current profile …	✔	✓	✓	✔	
2. Investigate current training provision …	✔	✓	✓	✔	
3. Assess and map appropriateness …	✓	✔	✔	✔	
4. Identify routes to employment …	✔			✔	
5. Recommendations …				✔	✔

Figure 2: Forestry Skills Study Activities and Objectives

Activities

1.4. The Desktop Review was undertaken prior to any other activity. The documents considered at this stage are included in the References. Each document was reviewed, pertinent points noted for each objective and the details transferred to a master spreadsheet for later reference.

1.5. Following the Desktop review, a gap analysis was undertaken in order to determine what information was needed from additional research in order to satisfy each objective. This was also used to inform the means by which this information was to be obtained.

1.6. For Objective 1 (Assess the current profile of the forestry sector in terms of employment, skills, age, gender, diversity and business area) it was decided to obtain statistical data primarily from the Office for National Statistics (ONS). It was recognised that, given the size of the forestry sector and other issues (see Section 2) this data should be considered indicative rather than definitive but, given the available resources, was the best available.

1.7. Initial ONS data was obtained from an open access search of the Business Register and Employment Survey, via NOMIS[15]. This provided headline data regarding employment numbers in the forestry sector but, in order to determine greater detail on age, gender etc., it was necessary to request a bespoke table service from the ONS Social Survey Data Advice & Relations Team. The Data Advice and Relations Team (DART) is a chargeable service which produces bespoke Social Survey tables for customers.

1.8. Additional data relating to Objective 1 was requested from the Institute of Chartered Foresters and is included in Section 3.

1.9. Data to support enquiries into Objective 2 (Investigate current training provision by all providers, across all levels, across the forestry sector) was sourced from a query of the Higher Education Statistics Agency (HESA) database, undertaken by the University of Cumbria. This data related to HE providers only.

1.10. Data relating to Objective 3 (Assess and map appropriateness of training provision against workforce current and future needs) was, in part, obtained from reference to Training Need Analysis undertaken by the authors as part of a number of training projects implemented in recent years[16].

1.11. Consideration was then given into how to obtain qualitative information to support research into all Objectives, but in particular Objectives 3 and 4. Potential methods included an online survey, telephone and personal interviews, publicised requests for contributions and discussion groups. This applied to both employers and 'stakeholders'.

1.12. Online surveys undertaken by the authors have found to have declining response rates and value of information obtained, thought in part to be due to the plethora of such surveys undertaken in recent years. Whilst online surveys were considered to have the potential to obtain relatively large numbers the representative nature of this sample was determined by those who chose to opt in, with potential to skew the results.

1.13. It was therefore decided to rely primarily on a telephone survey of both employers and stakeholders, given that resources precluded in person interviews. A sample was selected which was considered to represent a broad cross section of the sector, in terms of location, business activity and size. In order to ensure a high level of participation, the employer group was contacted by the RFS by e-mail, with background information regarding the study and a request for their co-operation.

1.14. A number of additional activities were undertaken in order to obtain views from particular sections of the forestry sector. They included: -

1.14.1. 'Discussion Groups' held with groups of students from the University of Cumbria, Newton Rigg College and Harper Adams University, which focused on their motivations for studying forestry and aspirations for their career.

1.14.2. A discussion group with recent entrants to the forestry sector in Northumberland, including people working in the private and public sectors.

1.14.3. Informal discussions with students at the RFS Future Foresters Technology Day 1st National Forestry and Arboriculture Student Conference (Moulton College (20/10/17).

1.14.4. Informal discussions with forestry contractors at the Confor Woodland Show at Longleat (07/09/17).

[15] https://www.nomisweb.co.uk/

[16] RDPE Skills Framework 2013/14, Forestry Learning Network 2014/15, SIMWOOD 2015/17, Cumbria Woodlands RDPE Forestry Skills for the Forest 2010/13.

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