

Field Studies Council

FSC BioLinks Audiences Engagement Report

*Summary of audience consultation and
engagement with the FSC BioLinks project*

Version 3 – 31st January 2023

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1 Introduction

The FSC BioLinks project aims to engage people who have an existing interest in biological recording, such as amateur naturalists (in areas such as photography, conservation/environmental education), biodiversity sector professionals looking to develop their skills, and existing biological recorders.

Potential audiences were explored throughout the FSC BioLinks consultation undertaken during 2016 in order to ensure that project activities would have maximum impact by strengthening the biological recording network and promoting a diverse and inclusive community (Brown, 2017a).

The consultation highlighted the need to:

1. Categorise biological recorders according to their competency levels, as people with more advanced skills and knowledge have different needs from people relatively new to biological recording.
2. Ensure introductory level project activities provide a gateway into the project for potential biological recorders, such as amateur naturalists with interests in wildlife photography, environmental education and conservation.
3. Assess the current diversity of biological recorders and determine where groups are under-recorded and explore how FSC BioLinks can address these gaps and engage with hard-to-reach audiences.

More details of the consultation findings regarding audiences can be found in the **FSC BioLinks Consultation Report** (section 4) (Brown, 2017a).

This report details how the FSC BioLinks project gathered evidence regarding the demographics of people who are currently engaged with biological recording, and how it aims to engage with some of the demographics that were highlighted as under-represented.

Four demographic groupings were investigated during the consultation:

- Age
- Gender
- Ethnicity
- Special needs and disability

For Age and Gender the FSC BioLinks project has a responsibility not only to report against these metrics but also to influence the audience we are engaging with. For Ethnicity, the project will report against this metric but it is not within the project plan to proactively influence the audience in terms of ethnicity. Audiences with special needs and/or disabilities will be covered by the year three neurodiversity pilot; outside of this pilot FSC BioLinks is reporting against this metric and not attempting to influence it.

The following sections discuss each of these demographic groupings in terms of reporting and/or influencing. Each section includes the information, intended target audiences and desired outcomes outlined in the **FSC BioLinks Activity Plan** (Brown, 2017b) (within each of the 'Background' sections within this report). Each section then provides a summary of the progress to date, current engagement levels and summarised intended Action Plans for each of the target audiences.

2 Age

2.1 Background

Biological recording volunteers are often perceived as belonging to the middle-aged or older demographic (45+). This was echoed throughout the FSC BioLinks consultations - consultees consistently raised concerns regarding recruitment of young people (25-year-olds and under) into recording groups and societies (Brown, 2017a). The problem was seen by many to be a lack of engagement with younger biological recorders. This could be perceived as lack of awareness of biological recording amongst young people, as there is so little whole organism biology represented in the formal examination system in biology at A Level, and even on many undergraduate biology degrees where much of the emphasis is on biochemistry and medical/human biology.

This is of particular concern as a **generational skills gap** is developing with regards to species identification skills. This could lead to a reduced capacity to record British wildlife in the future. A comparison between the proportion of consultees and the UK population by age demographic demonstrates that young people were under-represented (see Figure 2-1).

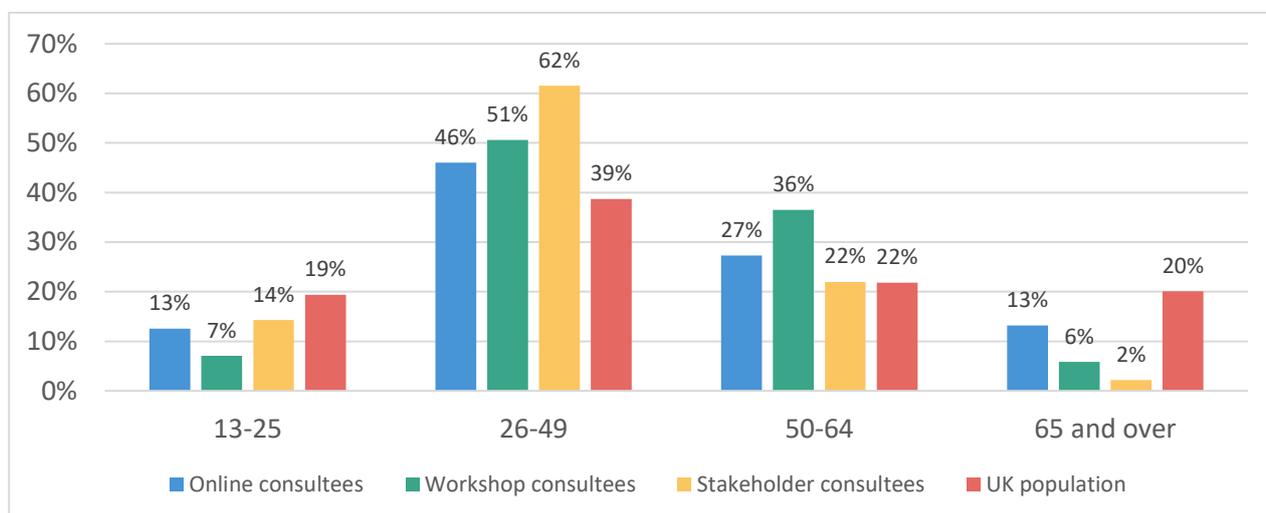


Figure 2-1: Bar chart demonstrating the proportion of FSC BioLinks consultees compared to the UK population. Under 13-year-olds were not considered within this data (based on 326 online survey respondents, 85 workshop consultees and 95 stakeholder consultees). Mid-2014 UK population estimates (Large, 2015).

The consultations were widely promoted through social media and A Focus On Nature (a forum for young naturalists) in a targeted effort to reach young people, so it is possible that the true proportion of young biological recorders is even lower. Although Figure 2-1 appears to suggest that the ‘65 and over’ demographic is also under-represented it should be noted that many consultees participated in a professional capacity, therefore increasing the proportion of consultees below retirement age.

Although several organisations reported that they have difficulty recruiting younger members, some groups (such as the Earthworm Society of Britain) stated that they have had success engaging with young people at training events and via social media (Figure 2-2).

Furthermore, A Focus On Nature (AFON) has continued to grow in size since it was formed in 2011. Their work includes hosting events, facilitating a mentoring scheme and giving young people a voice in the biodiversity sector. AFON also recently produced a



Figure 2-2: The Earthworm Society of Britain reported that young people regularly attend their identification training.

report detailing their 'Vision For Nature' for 2050 outlining young people's passion for natural heritage and their recommendations to a range of stakeholders (A Focus On Nature, 2016).

"The conservation sector needs to help foster the next generation of nature lovers and conservationists. The barriers to entry to the profession are extremely high and privilege the wealthy. Internships and apprenticeships paid at the living wage (at least) with sufficient cover for expenses should become common practice. NGOs should abandon the default of requiring all applicants for jobs to have a degree, and only ask for this when it is necessary for the role. "

A Focus On Nature 2016

Why are young adults (18-25) under-represented in biological recording? The following barriers in Table 2-1 below for recruiting young people to biological recording groups/societies, and potential solutions to be considered through FSC BioLinks project activities, were suggested during the AFON stakeholder meeting and public consultation workshops.

Table 2-1: Potential barriers and solutions regarding the recruitment of young people to biological recording project activities

Potential barrier	Potential solution
Cost – membership fees for groups/societies can range from free to £60+. Students and recent graduates may be put off by costs as low as £10 per year.	Consider subsidising young people to attend courses to ensure that travel expenses and course fees are not a barrier to participation.
Confidence – young people may be intimidated by the thought of attending their first event or course and feel like they have insufficient experience to make a valuable contribution.	<ul style="list-style-type: none"> • Clearly label events with the necessary competency level recommended. • Ensure that clear volunteer development is outlined to participants so that young people are attracted to the professional development afforded through project activities.
Awareness – communication is constantly evolving, and groups and societies may be using different methods of communication to those currently popular with young people.	<ul style="list-style-type: none"> • Advertise project opportunities through media that is used by young people such as social media sites (e.g. Facebook and Twitter). • Consult with A Focus On Nature regarding any strategies to target young people. • Target university students through sympathetic universities by advertising training provision to university natural history societies and on university noticeboards.
Accessibility – if location of meetings/events is not reachable by public transport it can be difficult for those who don't drive to attend.	Ensure project activities are held at locations that are accessible by public transport , or offer a station pick-up/drop-off service
Disproportional representation – it can be daunting if the demographic is skewed away from young people and make individuals feel like the "don't fit in".	Raise the profile of young naturalists already involved in biological recording to promote inclusivity to young people.
Relevance – young adults who are trying to develop their career may prioritise activities that provide evidence of skills and knowledge development.	Provide certificates of attendance to participants for training activities with outlines of the learning outcomes and skills covered by the course.

Young adults (18 – 25 years old) were selected as a priority audience for the FSC BioLinks project. A lack of young adults participating in biological recording and the subsequent lack of young adults with species identification and field skills is leading to a generational skills gap that risks future monitoring of our natural heritage. Feedback from representatives of AFON suggested that there are a number of barriers to young people becoming involved in biological recording (see Table 2-1) and FSC BioLinks will tackle this by committing to undertake all of the proposed solutions within this table.

Table 2-2: Audience summary table for young adults (18 25 years old)

Current engagement with the FSC	Why will the project engage them?	How will the project engage them?	Outcomes
<p>FSC has limited engagement with Young Adults as many of the environmental education services that are provided are to primary and secondary education students. Outside formal education, higher education students make up a small proportion of the FSC customer base as the young adult demographic is under-represented with regards to adult natural history course attendance.</p>	<p>Many biological recording schemes and societies report that young adults are under-represented within their pools of members and volunteers. This has led to a concern that a generational skills gap in field and identification skills is forming and poses a threat to our natural heritage if future generations are ill-equipped to monitor it.</p>	<ul style="list-style-type: none"> • Working with AFON to overcome barriers to engaging with young people. • Targeted promotion of project activities to young adults through universities and social media. • Raising the profile of young adult naturalists through in-house and external articles. • Sponsorship of young adults to attend biodiversity sector events to facilitate better integration into the existing community and overcome the barrier of cost. • Also see 'Career developers and higher education students' audience. 	<p>Young adults will have:</p> <ul style="list-style-type: none"> • Been made aware of biological recording volunteer opportunities. • Have a raised awareness of existing young adult naturalists and understand that biological recording is relevant to their demographic. • Been given opportunities to attend events that would often otherwise be difficult to attend due to cost being a barrier for many young people. • Met other biological recorders within the local community and become integrated into the existing network. • Become better represented within the biological recording community through all of the above.

2.2 FSC BioLinks' good practice

The FSC BioLinks consultation (Brown, 2017a) highlighted various good practice recommendations to ensure our courses and events appealed to young adults. This included:

- **Cost:** Course booking fees were kept low. All 1-day courses were available for just £5 (this was increased to £10 following the Covid-19 pandemic as the rate of no shows per event increased).
- **Confidence:** Events were clearly labelled with the levels outlined in the **FSC BioLinks Development Plan For Training Provision** (Brown, 2018) and the development pathways were explained during the introductory talk of each course.
- **Awareness:** Social media was used to engage younger audiences, with paid advertising undertaken to increase the proportion of young adults engaging with project accounts. The project has also worked closely with AFON to promote project activities and has partnered with AFON to run a competition for young adults that will reward 14 young adults with a week-long residential course on invertebrate identification and biological recording. Furthermore, FSC BioLinks supported AFON's Now For Nature conference (capacity of circa 200 delegates) by managing the bookings and providing event support. Some efforts have been made to target sympathetic universities, but these have not resulted in young adult attendance of project activities.
- **Accessibility:** All 2018 events in the South East were accessible by public transport. However, this was not the case in the West Midlands as the FSC Bishops Wood and FSC Preston Montford field centres are relatively remote.
- **Disproportional representation:** The profile of young naturalists was increased through the creation of guest blogs from Rosa Pietroiusti (Pietroiusti, 2018) and Holly Dillon (Dillon, 2018) (Dillon, 2019) and inviting Emily Seccombe (AFON) to speak at the 2018 London Recorders' Day.
- **Relevance:** Certificates of attendance were given to all course attendees on all South East region courses, and electronic certificates are offered to all West Midlands region attendees (with over 60% take-up of these digital certificates). Furthermore, a guest blog was produced by Roger Morris from the Hoverfly Recording Scheme outlining the skills and experience that can be gathered by students and career developers through becoming active biological recorders (Morris, 2018).
- **Photos and promotional material:** Where possible, representative photos of young adults were used in course brochures and other promotional material.

2.3 Engagement activities

Now For Nature Conference FSC BioLinks managed the bookings for this 2-day AFON conference (targeting 16 to 30-year-old young naturalists with a capacity of 209 delegates). This enabled the project to gather communication preferences for delegates and offer them the opportunity to sign up to the FSC BioLinks e-newsletter. Furthermore, the FSC BioLinks Project Assistant and FSC BioLinks Project Manager provided support to AFON during the conference, including presenting to delegates in the speaker/workshop sessions.

Mentoring and skill development The FSC BioLinks project provided support to a number of young people to help them improve their identification skills and develop their teaching skills on the way to becoming the tutors of the future. This included:

- Providing free spaces and reimbursement of travel costs to young adult volunteers;
- Supporting the development of one volunteer by providing the opportunity to act as an assistant tutor on several bee courses;
- Supported 'rising star' young tutors by giving them teaching opportunities and offering a higher level of support and training;
- Project manager Keiron Brown has registered as a mentor with AFON's mentoring scheme for young people and provided career mentoring to 3 young conservationists.

Tomorrow's Invertebrate Recorders Competition In 2019 the FSC BioLinks project teamed up with AFON to host a competition to provide 14 winners with free and expenses-paid spaces on a bespoke 5-day residential course (see below). The competition closed on 30th April 2019 and received 73 responses. Once the winners were selected the remaining applicants were contacted and provided with further information regarding how they benefit from participating in FSC BioLinks training opportunities and the opportunity to sign up the FSC BioLinks e-newsletter.

Tomorrow's Invertebrate Recorders Residential Course The 14 winners from the above competition attended a 5-day residential course in August 2019 covering biological recording and career development opportunities for young naturalists. Furthermore, it included attendance of two FSC BioLinks focus species group training courses (7 took part in earthworm ID training and 7 in spider ID training). This directly engaged 14 young adults with the project training programme. See the separate **FSC BioLinks Project Activity Report** for more details (Brown, et al., 2023).

Tomorrow's Invertebrate Recorders Blogs All 14 attendees on the 2019 course have been approached and asked to contribute a blog to the FSC Biodiversity webpage. Six blogs from the participants were published between September 2019 and July 2020 (Brown, et al., 2023).

Young Darwin Scholarship Programme Following the Covid-19 pandemic, the FSC BioLinks project worked in partnership with the Young Darwin Scholarship programme to engage with 16-25 year olds. During 2021 four 'Tomorrow's Invertebrate Recorders' day courses were delivered to a total of 54 young people (aged 16-25), with each day focusing on invertebrate ID and biological recording. Two further 'Identifying Terrestrial Invertebrates with Microscopes' courses were delivered to exclusively to Young Darwin Scholars in 2022, with a further 26 young people engaged with invertebrate ID (Brown, et al., 2023).

2.4 Engagement analysis

Results from FSC BioLinks course attendees that filled in the demographic survey within the end-of-project survey show that 2.1% of respondents who attended in-person events, while 11.1% of respondents who attended online courses, were within the young adult demographic (see the data shown in Figure 2-3) – although please note that sample sizes are orders of magnitude different between the UK population and our 115 respondents, so care must be taken when interpreting this result.

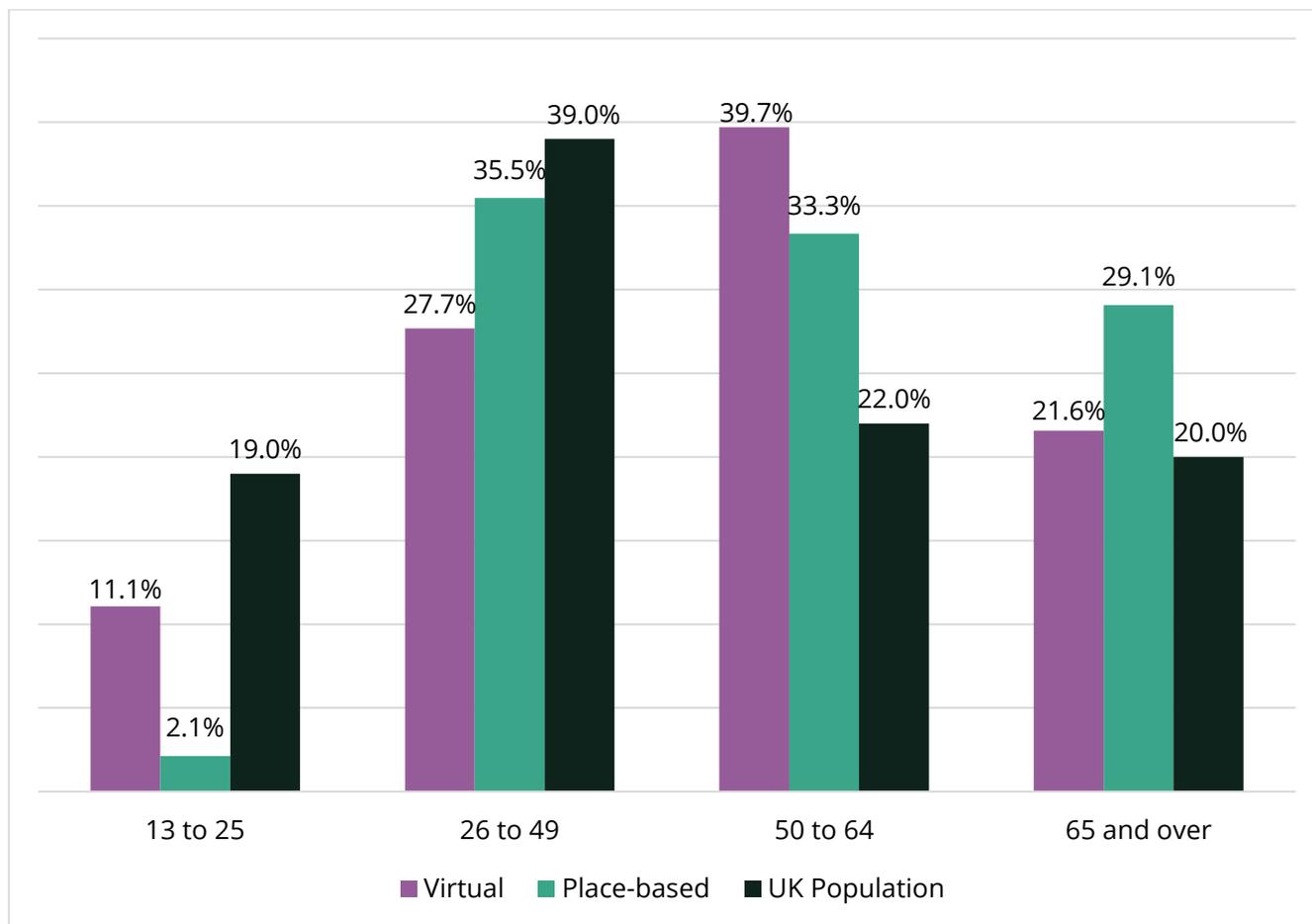


Figure 2-3: Bar chart demonstrating the percentage of FSC BioLinks course participants in each age category* compared to the UK population as a whole. Bars show one Standard Error. * (n = 665, based on demographic survey responses as of 22/12/22). ** (n = 54,063972, based on mid-2014 UK population estimates (Large, 2015). Under 13-year olds were not considered within this data).**

The data shown in Figure 2-3. shows that the FSC BioLinks project successfully engaged young adults via the virtual training programme, but that this age group were significantly underrepresented on place-based courses. It must be noted that the data for FSC BioLinks attendees is taken from a self-selecting group who proactively fill in the demographic survey all course attendees are invited to complete online.

Figure 2-3 also shows that the 50-64 age group is a significantly over-represented age group in terms of FSC BioLinks attendees (both in-person and virtual). It should be noted that as well as engaging younger people it is also vital that this group continues to be engaged and retained within the sector - these people are often early retirees, those seeking a career change and /or those consolidating and building on existing skills and are a key demographic for the continuing health of the UK biological recording network. The relatively high proportion of this age group means that we continued to engage well with this demographic within the FSC BioLinks project. The 26 to 49 age group were underrepresented, possibly due to focusing on careers and families and not having the time for further study or to contribute to biological recording.

Demographic data gathered from the project Facebook and Instagram accounts in May 2019 indicates that the project achieved success in engaging young adults through social media - 24% of Facebook page likes and 21% of Instagram followers were within the 13- to 24-year-old age bracket (see Figure 2-4).

Social media advertising targeting young adults was undertaken during late 2018. Following this there was a noticeable increase in the number of young adults that liked the FSC BioLinks Facebook page (see Figure 2-4). We have not asked any of these newly engaged young adults whether they were influenced by the advertising efforts made and we do not plan to do this due to GDPR restrictions and logistical difficulties. However, the circumstantial evidence is compelling – the percentage of likes of our Facebook page coming from 18-24-year-olds increased from 10% to 22% in the six months after the targeted advertising campaign. The proportion of young adults that liked the Facebook page began to decline after paid promotion to this audience was ceased.

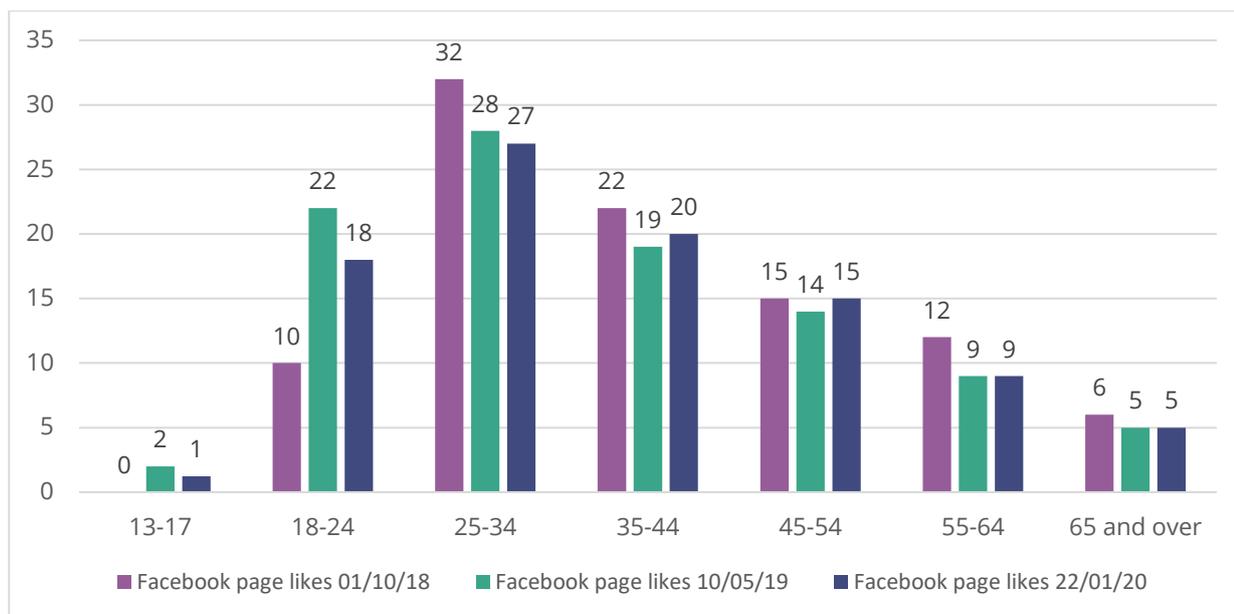


Figure 2-4: Bar chart demonstrating the percentages of social media followers belonging to different age demographics. n = 999 for Facebook likes on 01/10/18; n = 1402 for Facebook likes on 10/05/19; n = 1735 for Facebook likes on 22/01/20.

FSC BioLinks Project Manager Summary and Recommendations

1. Targeted young adult engagement activities were successful in engaging 16-25 years olds with biological recording and invertebrate identification.
2. Young adults engaged through targeted activities did not necessarily go on to participate within the wider regional training programmes. The exceptions to this tended to be when a concerted effort was put into specific individuals.
3. Virtual training activities were highly successful for engaging young adult audiences. However, this also did not necessarily lead to greater attendance within the regional training programmes.
4. Key barriers noted by young adults engaged with the project activities were cost, geographic accessibility and conflicts with working days (the latter can be weekdays or weekends depending on the job of the young adult).

3 Gender

3.1 Background

The FSC BioLinks project recognises that women are perceived to be an under-represented audience across the heritage sector and have identified this as an area requiring further investigation.

Within the biodiversity sector, the common perception of a biological recording volunteer is male. Verbal feedback from consultees collated through the FSC BioLinks consultation regarding gender balance often repeated this assumption, although gender participation in the consultation events was relatively even (see Figure 3-1 and Figure 3-2). Representatives of participating organisations were unable to provide empirical evidence to confirm their suspicions regarding perceived gender imbalance, and there is a lack of evidence detailing the proportion of women across different competency levels.

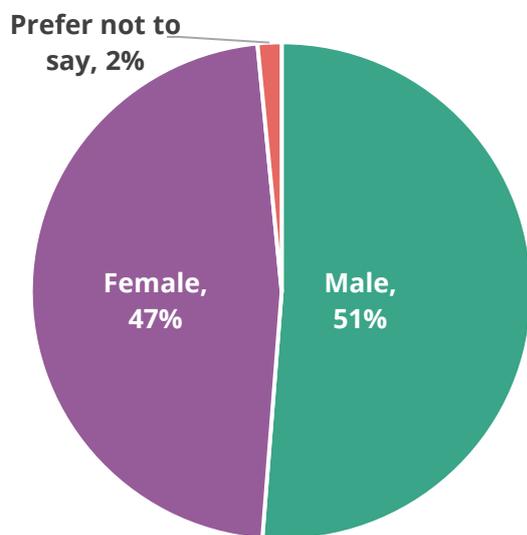


Figure 3-1: Pie chart of online survey respondent gender (based on 326 responses).

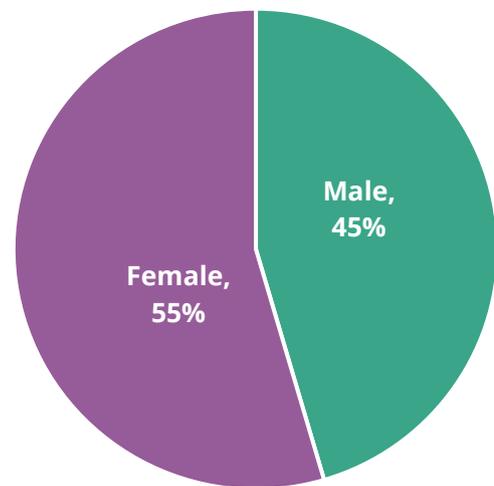


Figure 3-2: Pie chart of stakeholder meeting / consultation workshop attendee gender (based on 187 attendees).

The Royal Society of Biology is concerned about the loss of women from the biosciences’ workforce (Royal Society of Biology, 2016). It recognises the low number of women who progress to senior positions in universities and research institutes, government, business and contributed to the House of Commons Science and Technology Select Committee’s inquiry into women in academic STEM careers. The subsequent report referenced the “leaky pipeline” that is used to describe the continuous loss of women at consecutive career stages within Science, Technology, Engineering and Mathematics (STEM). These gradual losses reduce the numbers of women retained in STEM at senior levels (House of Commons Science and Technology Committee, 2014).

There are reports detailing some of the actions needed to ensure a more focussed approach to gender balance across the hierarchy of skills development in science and technology including a report from the Royal Society of Edinburgh (Royal Society of Edinburgh, 2012) and the following extracts highlight some key points from this report:

It is recommended

“to ensure that appropriate data is being collected, analysed and reported regularly, and trends examined”

and includes the recognition that

“Women who do remain in the STEM work force are still segregated by occupation (horizontal segregation) and grade (vertical segregation). The number of women who advance to the most senior positions in STEM remains proportionately much smaller than that of their male counterparts”

(Royal Society of Edinburgh, 2012)

This has been supported further in a review of ‘The Status of Women in the Life Sciences’ (Peters & Lane, 2015):

“Women in the life sciences seem to attract less concern and attention than women in physics, IT or engineering. Perhaps because women in the life sciences at undergraduate and, more recently, postgraduate level have equalled or exceeded men for the past 30 or so years. More attention needs to be paid to the career planning and professional preparation of young women, so that more will be able to progress to senior positions and decision-making roles.”

(Peters & Lane, 2015)

None of this research has been conducted directly in the biological recording sector, but anecdotal evidence from sector professionals and senior national experts suggests that there may be a gender imbalance at higher competency levels even though there may be an equal division of participation across biological recording as a whole.

The recommendations in all these reports have kept flexibility of opportunity at the heart of good practice. FSC BioLinks will ensure choice of timescale, day, time of year and skill level to maximise the potential engagement to all and especially those who may have other caring responsibilities, full time work commitments or a varied volunteering profile. FSC BioLinks will aim to safeguard an even gender balance at all skill levels and closely monitor those this at the expert level to provide empirical data to help the sector address this nationally.

Women are an audience that was suspected to be under-represented due to the common perception of the typical biological recorder. Although the feedback from consultees and analysis of the gender of consultation participants did not support this, there is no evidence detailing the spread of women across different competency levels. Therefore, it has been decided that FSC BioLinks will monitor the proportion of women participating in the FSC BioLinks project and take action to directly recruit women if they are found to not be proportionally represented (less than 40%) across all competency levels addressed by the project. This will be reviewed on an annual basis.

Table 3-1: Audience summary table for women

Audience	Current engagement with the FSC	Why will the project engage them?	How will the project engage them?	Outcomes
Women	The FSC does not record data regarding the gender of adult natural history course attendees and can therefore not determine the level of engagement that currently occurs with women. However, anecdotal evidence and representation during the FSC BioLinks consultation events and Ento Day 2016 (regional recorder conference hosted by the FSC) suggests that men and women are equally represented.	The project aims to deliver activities that do not favour one gender over another, and it is expected that women and men will be equally represented in project activities. However, the traditional stereotype of a biological recorder is male so the project hopes to monitor female representation and provide an evidence base to demonstrate how fairly women are represented within the biological recording community.	<ul style="list-style-type: none"> • The proportion of project activity participants that are female will be monitored and reviewed annually. • If women are found to be under-represented, targeted promotion of project activities will be undertaken to local charities working with women. 	Women will have: <ul style="list-style-type: none"> • No less than 40% overall representation in project activities.

3.2 FSC BioLinks’ good practice

Our consultation highlighted various good practice recommendations to ensure our courses and events display equal opportunity for all genders. This means that to date we have tried to maintain flexibility of opportunity: we offered courses on different days of the week, at different times of year and at a range of skill levels to maximise the potential engagement to all, and especially those who may have family related time ties, full time work commitments and or a varied volunteering profile. The FSC BioLinks project aimed for an even gender balance throughout the project and monitored this through annual checks of the gender balance within the demographic survey results and FSC Biodiversity Facebook page followers.

Definitions

For the purposes of this approach, gender definitions are as follows:

Female: Someone who identifies as a woman or a girl.

Male: Someone who identifies as a man or a boy.

Non-binary: Non-binary is just one term used by individuals who may experience a gender identity that is neither exclusively male or female or is in between or beyond both genders. Non-binary individuals may identify as gender fluid, agender (without gender), third gender, or something else entirely.

(Boskey, 2019)

3.3 Gender balance analysis

The gender balance within the demographics survey and Facebook followers data was consistently demonstrating that more females engaged with and followed the project than men. A break down by year can be found in the FSC BioLinks Project Activity Report (Brown, et al., 2023).

For example, from the 202 FSC BioLinks course attendees that completed the online demographic survey by the end of 2019, 50.5% of respondents identified as female, with 48% identifying as male and 1.5% as non-binary. It should also be noted that our data only comes from those attendees who have voluntarily filled in the demographic survey – it may be that there is an inherent gender bias in the subsection of volunteers who choose to fill in this survey. At the end of January 2020, 59% of those that like the FSC BioLinks Facebook page identified as female, further evidencing that women are not under-represented within the project. Therefore, no targeted engagement for women was undertaken.

The demographics survey within the end-of-project evaluation survey confirmed that women were not underrepresented within the FSC BioLinks project. Figure 3-3 illustrates the proportion of respondents that attended the in-person training activities within the regional training programmes, and illustrates that women were well represented. Figure 3-4 illustrates the proportion of respondents that attended the online training activities within the virtual training programme, and illustrates that women were again well represented.

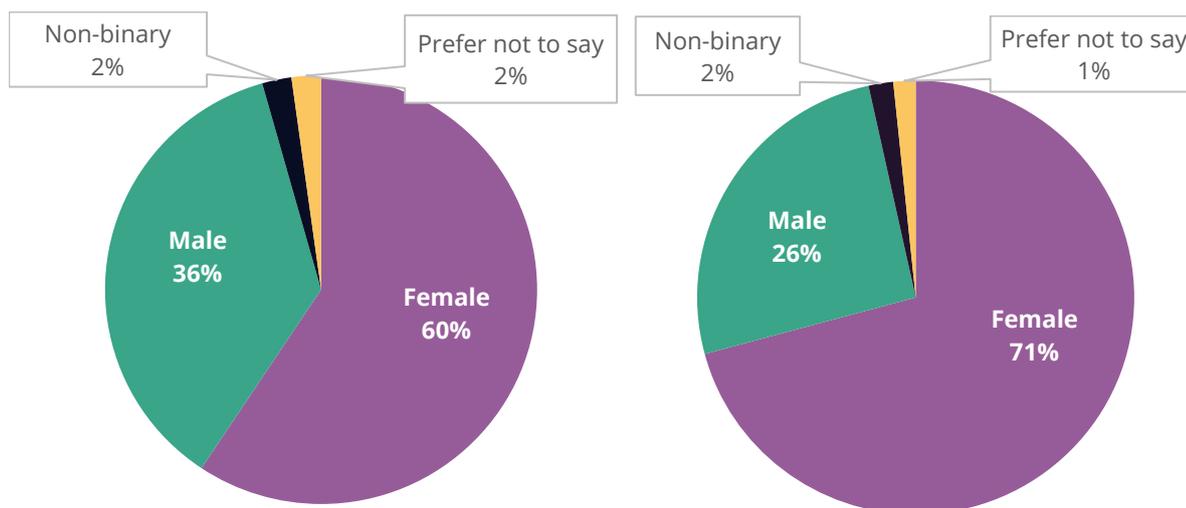


Figure 3-3: FSC BioLinks end-of-project evaluation survey respondent in-person gender (n = 141).

Figure 3-4: FSC BioLinks end-of-project evaluation survey respondent online gender (n=552).

FSC BioLinks Project Manager Summary and Recommendations

5. Women were not underrepresented so it is unlikely that targeted engagement activities are required to engage female audiences with biological recording activities (at least for activities focusing on invertebrate subjects).
6. Men were under-represented when compared with women throughout the project, particularly within the virtual training programme, and could potentially be considered a priority for invertebrate ID training and recording projects in the future.

4 Ethnicity

4.1 Background

It was reported in the FSC BioLinks consultation public workshops that consultees do not believe that ethnic minority groups (excluding white minorities) are proportionally represented within the biological recording community and that most volunteer biological recorders are white. This was further supported by the disproportionately high representation of white individuals (>98%) within the FSC BioLinks public consultation.

The Black Environment Network is an organisation working towards a vision of full multicultural environmental participation, local and global. Their guidance for the environment and heritage sector indicates that substantial engagement level activities may be necessary in order to attract ethnic minority groups.

"Many ethnic communities do not access the natural and built heritage simply because they have no information and have never been introduced to what is on offer."

(Black Environment Network, 2005)

Feedback from consultees who had experience of engaging with ethnic minority groups recommended that any attempts to target this audience would require external expertise to broker relationships with local groups, and their feedback supported the Black Environment Network report by stating that engaging with ethnic minority groups would likely require substantial engagement activities in order to recruit individuals to the wider training project activities.

Evidence from the Mosaic Project to involve ethnic minority groups in National Parks (Campaign for National Parks, 2012) documented some of the barriers that exist to groups such as ethnic minority groups engaging with natural heritage.

In 2021 the FSC commissioned a report by Museumand – National Caribbean Heritage Museum to consult with ethnic minority groups (excluding white minorities) regarding recent FSC attempts to open up their services to a wider range of audiences.

"Very real blockers to widespread engagement of the black community in the FSC offering include:

- costs of the training,*
- accessibility of the training courses and work experience,*
- usefulness of rural pursuits to the current life issues important to the Black community,*
- sustainability of the jobs in the current economic situation following a study of these courses, and*
- the provision of personal and professional support for black students, trainees and workers while studying in what is environment where there are not usually black and brown people."*

(Museumand - National Caribbean Heritage Museum, 2021)

These barriers are relevant to the FSC BioLinks project and potential solutions are outlined in Table 4-1

Table 4-1: Potential barriers and solutions regarding the recruitment of individuals from ethnic minority groups to biological recording project activities

Potential barrier	Potential solution
Skills – may be few individuals within ethnic minority groups with skills in recognising and recording biodiversity.	Offer training at engagement level to build skills and facilitate ethnic minority groups to participate in project activities.
Concerns – feeling unwelcome, specific religious/cultural needs may not be catered for or fear of racist abuse.	<ul style="list-style-type: none"> Facilitate events where ethnic minority groups can meet project participants (staff, mentors and volunteers). Ensure that specific needs are requested when organising training/events.
Awareness – Some ethnic groups may not be aware of biological recording and how to get involved, particularly if there are no initiatives within the local community.	<ul style="list-style-type: none"> Targeted advertising to local ethnic minority groups, such as social media groups (e.g. Facebook). Consult with ethnic minority groups engagement organisations (such as the Black Environment Network) and regarding any strategies to target young people. Training and support of Community Champions to broker relationships with local ethnic minority groups.
Accessibility – if location of meetings/events is not within areas where ethnic minority groups are present, participation is less likely.	Organise events/training within areas with higher proportions of ethnic minority groups with good links to public transport.
Relevance – don't understand the importance of biological recording and the benefits to the local community.	<ul style="list-style-type: none"> Raising the profile of naturalists with ethnic minority backgrounds already involved in biological recording to promote inclusivity to the ethnic minority groups audiences. Having representative images in project promotional material.

Table 4-2: Audience summary table for minority ethnic groups

Audience	Current engagement with the FSC	Why will the project engage them?	How will the project engage them?	Outcomes
Minority ethnic groups	FSC engages with ethnic minority group audiences in mainstream educational courses and fully integrates all groups into its training provision through a non-selective approach.	The level of activity that would be necessary to overcome the existing barriers for ethnic minority groups to engage with biological recording is beyond the scope of this project due to limited capacity, expertise and resources.	<ul style="list-style-type: none"> Following good practice (e.g. ensuring that promotional images are representative of the diversity within England and promoting the project activities to organisations undertaking environmental engagement work with ethnic minority groups). Delivering project activities in areas with high ethnic diversity (e.g. Birmingham or London). Ensuring that a summary of ethnic minority groups audience engagement within the project is reported in publicly available documents so that the sector can learn from project experience and lessons learned. 	Ethnic minority groups will have: <ul style="list-style-type: none"> Been made aware of project activities that occur within their local community.

4.2 Ethnic minority group engagement analysis

The demographics survey within the end-of-project evaluation survey evidenced that ethnic minority groups (excluding white minorities) were underrepresented within the project. Out of 682 responses, 507 respondents provided information on their ethnicity.

- 95.9% (486) identified as White or White British
- 2.8% (14) identified as Mixed or multiple ethnic background
- 1.2% (6) identified as Asian or Asian British
- 0.2% (1) identified as Black or Black British

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7. Ethnic minority groups were underrepresented with FSC BioLinks, accounting for just 4% of participants.
8. Working with partners that specialise in engaging ethnic minority audiences may be key to improving inclusivity and diversifying the biodiversity sector.

5 Neurodiversity

5.1 Background

“Neurodiversity is the diversity of human brains and minds, the infinite variation in neurocognitive functioning within our species. Neurodiversity is understood to be a form of human diversity that is subject to the same social dynamics as other forms of diversity (including dynamics of power and oppression).

Instead of attempting to “cure” autistic or bipolar people, seek to help autistic or bipolar people thrive as autistic or bipolar people, finding ways of living that are more in harmony with their natural neurological dispositions, and helping them to heal from internalized oppression.”

(Walker, 2020)

There are many different types of neurodiversity and it was beyond the scope of this project to investigate all of these in detail. The range of barriers that exist for this wide range of needs are vast and many organisations are undertaking work to engage a greater range of neurodiverse people with biodiversity.

One potential audience that could be engaged are individuals with autism. During the consultation it was noted by one further education educator that there is potential to incorporate project activities into FSC BioLinks that could benefit individuals with autism. It was suggested that, for example, apprentice trainers could incorporate aspects of biological recording into vocational training programmes for individuals with autism if the trainers were provided with relevant information about biological recording and existing surveys.

The National Autistic Society reports that there are around 700,000 people with autism in the UK, or more than 1 in 100 in the population (National Autistic Society, 2018). Our recruitment team noticed that this figure was much higher on our accredited biological recording courses – coming closer to 1 in 10 people. This suggested more work might be welcomed to better use the positive attributes of ability to focus and attention to detail that can be exhibited by individuals with autism and is highlighted by the work of Chris Packham.

It was determined that the pilot project would focus on engaging those involved with those organising, facilitating, hosting and teaching species identification training programmes, rather than directly with individuals with autism. The aim of the pilot project would be to provide training and guidance on how educators can make these programmes and events more inclusive of neurodiversity, specifically for individuals with autism.

“Many autistic people have intense and highly focused interests and channel their interest into studying, paid work, or volunteering. Autistic people often report that the pursuit of such interests is fundamental to their wellbeing and happiness.

If autistic people with a particular interest in nature were to be recruited as volunteers for this project, they would in all likelihood have a great contribution to make to the work being done.

We provide training at essential, enhanced and specialist levels. Training for any tutors who will be working closely with autistic people would provide them with the knowledge and skills necessary to meet volunteers’ individual needs, which would then provide a more positive experience for volunteers and tutors alike. ”

- Christina Jenkins, Business Development Manager for Training, Consultancy and Conferences, National Autistic Society

(Brown, 2017a)

Table 5-1: Audience table for educators of adults

Audience	Current engagement with the FSC	Why will the project engage them?	How will the project engage them?	Outcomes
Host organisations and tutors providing training in species ID and biological recording	FSC is a sector-leading provider of this training and has a large network of associate tutors. The FSC also has good links within the biological recording sector with many other providers of similar training.	Many natural history training courses are attended by a disproportionately high number of individuals with autism and autistic traits, many of whom show a natural aptitude for the skills required for species identification and recording. However, many of these people may find the training events inaccessible or difficult to cope with as they have not been designed with a neurodiverse audience in mind.	<ul style="list-style-type: none"> Investigating possible opportunities with educators and learning difficulty experts. Providing training for natural history training providers and tutors to make their training programmes more accessible to neurodiverse audiences. Producing an online training resource following evaluation of this pilot. 	Natural history training providers will have: <ul style="list-style-type: none"> Learned how to incorporate neurodiverse audiences into their training programmes. Access to an online training resource.

5.2 Neurodiversity Pilot Project

The National Autistic Society (NAS) were contracted to deliver three outputs.

Discovering Spiders Online Training Course Review A 14-page review of one of the online training courses delivered through BioLinks has given the FSC Biodiversity team feedback on what went well and what could have gone better, alongside some recommendations for improving the course for individuals with autism. One recurring key lesson learned was to ensure that the way in which information is presented is consistent throughout the course, and between different courses. This highlighted the need for stricter format and layout rules for course developers.

Online Training Guidance for Learners with Autism A 10-page guidance document outlined guidance from the NAS on the following course structure/layout, course study content, interactive quizzes and graded assignments within online training courses. The guidance will help the FSC Biodiversity team understand why presenting information in certain formats over others is more beneficial for learners with autism. For example, where step-by-step instructions are used, numbered lists are preferred over bullet-pointed lists.

Introduction to Autism in the Workplace Webinar A 1-hour webinar by a NAS trainer was delivered to 30 FSC staff and 13 Associate Tutors. The training helped staff to focus upon Autism amongst their colleagues and our customers. It gave them confidence to ask questions and consider their approaches. As a direct result of the training two staff members have stepped forward to volunteer their time to support a staff network which will focus on autism. This will help FSC to develop resilience as an organisation by better supporting its staff to understand the needs of wider community needs.

"Thanks so much for organising the recent webinar on autism, I'm neurodivergent myself (with ADHD) so I really appreciate these kind of events that raise awareness of how different brains work & function and it was great to learn more about autism."

Jack Riggall, FSC Associate Tutor

"Following the training session, the Field Studies Council will be delivering bespoke training for both Managers and staff in "Neurodiversity in the Workplace". These sessions will be to create awareness and support, both for and from managers and staff, on how to assist and signpost those that come forward asking for support and this will break down the stigma surrounding these differences. We are also committed as part of our Equality, Diversity, and Inclusion Strategy to ensuring that all staff feel supported and safe in their working environment."

David Goodwin, HR Business Partner (Employment Relations & Training)

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9. The recommendations provided by the National Autistic Society should be implemented across all FSC educational outputs.
10. Guidance regarding other forms of neurodiversity (e.g. ADHD) should be sought to improve FSC educational outputs for an increased range of neurodiverse audiences.

6 Conclusion Summary

Below is a list of the FSC BioLinks Project Manager Summary and Recommendation points highlighted throughout the report.

1. Targeted young adult engagement activities were successful in engaging 16-25 years olds with biological recording and invertebrate identification.
2. Young adults engaged through targeted activities did not necessarily go on to participate within the wider regional training programmes. The exceptions to this tended to be when a concerted effort was put into specific individuals.
3. Virtual training activities were highly successful for engaging young adult audiences. However, this also did not necessarily lead to greater attendance within the regional training programmes.
4. Key barriers noted by young adults engaged with the project activities were cost, geographic accessibility and conflicts with working days (the latter can be weekdays or weekends depending on the job of the young adult).
5. Women were not underrepresented so it is unlikely that targeted engagement activities are required to engage female audiences with biological recording activities (at least for activities focusing on invertebrate subjects).
6. Men were under-represented when compared with women throughout the project, particularly within the virtual training programme, and could potentially be considered a priority for invertebrate ID training and recording projects in the future.
7. Ethnic minority groups were underrepresented with FSC BioLinks, accounting for just 4% of participants.
8. Working with partners that specialise in engaging ethnic minority audiences may be key to improving inclusivity and diversifying the biodiversity sector.
9. The recommendations provided by the National Autistic Society should be implemented across all FSC educational outputs.
10. Guidance regarding other forms of neurodiversity (e.g. ADHD) should be sought to improve FSC educational outputs for an increased range of neurodiverse audiences.

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