BRITISH ECOLOGICAL SOCIETY

CONNECTING SCHOOLS TO NATURE 2021 - 2023

EVALUATION REPORT

SMASH_UK

Mammal Web

Green Recovery Challenge Fund

Department for Environment Food & Rural Affairs

The National Lottery Heritage Fund

Environment Agency

NATURAL ENGLAND

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With special thanks to:

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Cover Photo:

Laurel Avenue School, Durham - Green Transformations Day (Gavin Forster Photography)

The British Ecological Society

We were established in 1913 and we have been fostering the science of ecology ever since. We have 6,000 members around the world and bring people together across regional, national, and global scales to advance ecological science. Membership is open to anyone, anywhere.

Our vision is for nature and people to thrive in a world inspired by ecology. We rely on the commitment of hundreds of volunteers to help us - from the editors who work on our journals, reviewers in our Grants Review College, the teams behind each of our Special Interest Groups, the trustees and members of our Board of Trustees and committees, to the helpers at our Annual Meeting - we could not do what we do without their effort and passion.

MammalWeb

MammalWeb was set up in collaboration between Durham University and Durham Wildlife Trust, and is run by MammalWeb Limited. MammalWeb is a “citizen science” platform intended to collate, validate and curate camera trap data that can inform us about the distribution and ecology of mammals.

Smashfest

SMASH_UK is a research, production, and consulting organisation that works in exploring new modes and methods for public engagement, co-design and collaborative creativity with communities underserved by STEM and Arts informal education and underrepresented in STEM and Arts education and careers.

This project was funded by the Government’s Green Recovery Challenge Fund. The fund was developed by Defra and its Arm’s-Length Bodies. It is being delivered by the National Lottery Heritage Fund in partnership with Natural England, the Environment Agency and Forestry Commission.

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INTRODUCTION

Overview of the project

The 'Connecting schools to nature in North-East England' project engaged with 72 schools and 65 environmental educator volunteers across the North-East, to help inspire both teachers and pupils to engage with the natural world while transforming their school grounds into wildlife-friendly havens. We actively engaged with over 5,000 pupils, through a combination of outdoor workshops, teacher training events, and the delivery of our digital platform "BES Encounters". Furthermore, over 10,000 pupils benefitted from the project through green transformations of their school grounds. There are lasting resources and plans to ensure the legacy of the project continues into our future work. Our activities focused around three key modules of mammals, invertebrates, and birds.

Module 1 | Mammals

At the very start of the project, schools participated in a 'mammal challenge week', using different equipment and resources to learn about the mammals living in and around their school grounds. During class workshops, pupils set up camera traps and footprint tunnels to test their skills in identification. Schools also started their journey towards improving their local habitat, carrying out group litter picking exercises, and learning about the ways in which litter is harmful to wildlife. The mammals module also introduced teachers and pupils to citizen science, through the submission of camera trap findings to the MammalWeb project. This enabled pupils to contribute directly towards real-time species data collection, whilst playing an active role in the protection of their local environment.

Module 2 | Invertebrates

During module 2, pupils spent time hunting for invertebrates equipped with sweep nets, beating sheets, magnifiers, and insect pots. Through these activities, pupils learnt about how even the smallest animals can have an important role in the wider ecosystem. Pupils also planted their own pollinator-friendly plants and were encouraged to think about how this could benefit local insects and the wider environment. This module also saw schools design their 'ideal green school', with both teachers and pupils submitting their designs and sharing these with the wider community.

Module 3 | Birds

In module 3, each school was supplied with a bird house, bird feeding station, ID guides and binoculars. Assisted by our team of project volunteers, pupils took part in birdwatching sessions and making their own bird feeders. This module also saw the launch and delivery of our Green Transformations funding bid, where schools applied for up to £400 to help turn their 'ideal green school' designs into a reality. This allowed schools to achieve a variety of their goals, from installing ponds and planting wildflower meadows, to purchasing waterproof clothing and outdoor classroom equipment.

This report will first outline our original evaluation logic model and our approach to evaluation, including how we collected data. Each chapter of this report will then focus on the three Green Recovery Challenge Fund themes on which this project has focussed: 1. Job creation/retention; 2. Connecting people with nature; and 3. Nature recovery (Nature-based solutions was not an applicable theme for this project). Within each chapter, we have a section for each of our project objectives. The final chapter of this report will focus on project legacy.

Overview of evaluation logic model

As set out in our original application, we have measured progress against three Green Recovery Challenge Fund (GRCF) themes across the project. In Table 1 we outline our original evaluation model, including how the GRCF themes map onto both our own objectives set out at the start of the project and each of the National Heritage Lottery Fund outcomes. We include the outputs originally set out at the start of our project. Where our original outputs changed or were exceeded throughout the project we provide details in square brackets.

GRCF Themes	**Objectives**	**Outputs**	**National Heritage Lottery Fund Outcome**
Job creation/ retention	(1) Recruitment of key staff (2) Recruitment of schools and educators (3) Training of teachers and environmental educators	6 newly created job roles within the BES [8 new job roles created] Recruitment of 50 schools [72 schools recruited] Recruitment of 50 environmental educators [65 educators recruited] Training programme for teachers and educators	A wider range of people will be involved in heritage People will have developed skills which will improve career prospects in the sector The local economy will be boosted
Connecting people with nature	(4) Increasing connection to nature and knowledge of local wildlife for teachers and pupils (5) Development of digital platform Encounters (6) Creating new educational resources	10,000 pupils reached through the project [5,000 directly involved with >10,000 benefitting from equipment, upskilled teachers, and green transformations] Pupil workshops delivered New digital platform 'BES Encounters' created	People will have learnt about heritage, leading to change in ideas and actions People will have greater well-being The funded organisation will be more resilient

		A range of resources developed by BES staff [137 new resources developed by BES staff, educators and teachers]	
Nature recovery	(7) Improving school grounds: green transformations	School grounds transformed through equipment and resources given to schools including - 50 insect hotels - 50 hedgehog highways - 50 bird feeding stations - 50 bird nest boxes [Overall equipment and resources given out exceeded original output]	N/A
Nature-based solutions	Not applicable for this project.		

Evaluation methodology

We used a mixed-method approach to evaluate whether we achieved our project objectives. Most of our data was collected through questionnaires at set points throughout the project but we also collected ad-hoc feedback through emails and at events. We also tracked engagement on the Encounters platform through analysing digital databases of activities completed and resources uploaded.

Teacher questionnaires

To assess impacts the project had on participating teachers and to gather further insights on the benefits and barriers to engagement, teachers completed questionnaires at set points throughout the project. All teacher questionnaires were completed online on Microsoft forms and included a mix of quantitative and qualitative questions. The first questionnaire was completed before the project commenced (November - December 2021). Teachers then completed a second questionnaire at the end of module 2 (July 2022). The purpose of this second questionnaire was two-fold: firstly to gather feedback on various aspects of the project, including the Encounters platform, to help adapt the final stage of the project (module 3); and secondly, as this was the end of the academic year, we wanted to capture data prior to any handover of project work between teachers. A final questionnaire was completed by teachers at the end of the project delivery phase (February 2023).

Environmental educator questionnaires

Similarly to teachers, environmental educators completed online questionnaires via Microsoft forms at set points in the project. Questions within the environmental educator questionnaires were similar to those in the teacher questionnaires and included a mix of quantitative and qualitative questions. Environmental educators completed questionnaires before the project started (November - December 2021) or at their point of joining, and after the delivery phase of the project (February - March 2023).

Pupil questionnaires

Pupil questionnaires were filled out on paper during classes, supervised by teachers. Two types of pupil questionnaires were filled in: (1) knowledge of UK species and (2) connection to nature and ecology. The knowledge questionnaires consisted of photos of 10 UK species and included a mix of common and rare species and native and non-native species. There were three versions of knowledge questionnaires, one for each module of mammals, invertebrates and birds. For each module the corresponding questionnaire was given out pre- and post-module. The connection to nature and ecology questionnaires were given out to pupils in Key Stage 2 (aged 7-11) and had the connection to nature scale (validated for use with this age group) and a question asking 'what does ecology mean to you'. The connection to nature scale consists of 16 statements and a likert scale to agree/disagree with each statement. The scale encompasses four dimensions: (a) enjoyment of nature, (b) empathy for creatures, (c) sense of oneness, and (d) sense of responsibility. How children score on the scale influences their intention to participate in nature-based activities in the future. Overall, an average score of 1-5 is generated, with 5 being the most connected to nature.

Use of Encounters

Data on activities completed and resources uploaded to Encounters was generated by analysing data tables available to admin users on the platform. These data tables can be used to calculate overall activity on the site and the range of different activities completed.

Other forms of evaluation

Throughout the project we have also collected ad-hoc quotes and photos via email and at our events. During our pupil workshops, staff and volunteers wrote down quotes from pupils taking part in activities. We also took quotes from emails received from teachers and volunteers following events such as pupil workshops or training sessions. In teacher training sessions, we gathered feedback specifically on the sessions via paper questionnaires given out at the end of the session. All quotes remain anonymous unless permission was given to share names. All photos shared in this report are shared with permission from appropriate parties.

Data analysis

For measures such as knowledge of UK species and connection to nature, we assessed pre- and post-data gathered from questionnaires. For teachers, post-project data included submissions from teachers who left the project at the end of the academic year (July 2022) and had filled in questionnaires at that point. For teachers, volunteers and pupils we present both average scores for pre and post and, where it was possible to track, differences in individuals' scores. We used t-tests to determine whether differences in scores were significant pre- and post-module/project. Within each chapter, we use qualitative data in the form of quotes taken from questionnaires and during events (e.g., teacher training) to demonstrate further how project objectives were met.

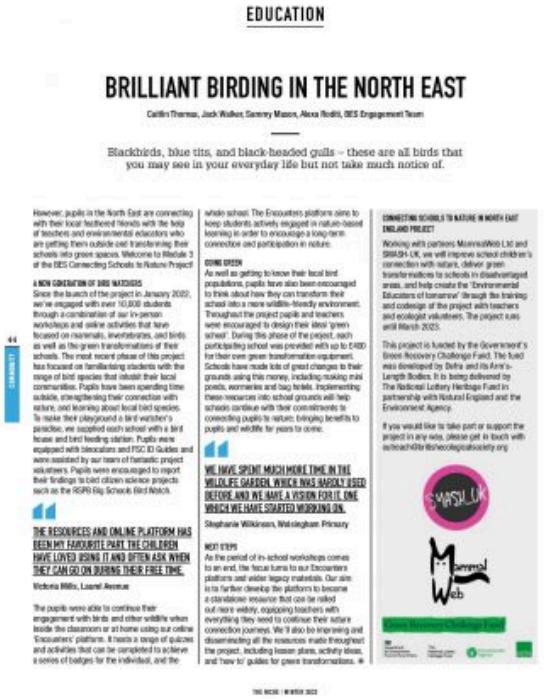
Communications

The Green Recovery Challenge Fund (GRCF) Funders and logo have been recognised in all external facing web pages and communication released by the project, including via the BES Encounters platform developed (BES Encounters (mammalweb.org)). Future resources linked to the legacy products and project will continue to credit the GRCF funders.

During Module 2 of the project, the team launched the creation of two fortnightly newsletters, one containing updates for teachers and one for volunteers. The newsletters typically contained 4-5 items, helping to highlight inspirational project stories, share facts about local wildlife, and update participants on the latest news and project opportunities. Where relevant, we also used these to advertise external opportunities such as job postings and free training sessions aimed at early-career ecologists or school staff. The process was initially led by one of the Outreach Project Interns, who created the original templates on Mailchimp. A total of 28 newsletters were sent out, with an average open rate of 54.9% and click rate of 8%. Many of the schools and volunteers who were featured in the newsletters commented about how positive this was for them, with some presenting it as evidence to their Educational Trust as a case for continuing the work they had done on the project.

The Niche is the quarterly British Ecological Society magazine, written by and for our members. It covers the science of ecology and the lives of ecologists through news, opinion, reviews, fiction and more. Each issue is delivered to 8000 BES members in March, June, September and December.

The "Connecting Schools to Nature in the North East" project was featured in *the Niche* articles throughout the project and can be viewed here: Articles - British Ecological Society



EDUCATION

BRILLIANT BIRDING IN THE NORTH EAST

Blackbirds, blue tits, and black-headed gulls – these are all birds that you may see in your everyday life but not take much notice of.

Example Niche article featured in the Winter 2022 edition.

The BES Press Office carried out promotion of the project throughout each module and during the legacy phase. Each press release was also converted into a News Story and published onto the BES Website:

- 06.08.21 British Ecological Society awarded Green Recovery grant to connect school children with nature - "The British Ecological Society's project to improve nature connection in schools in County Durham and North East England has been awarded £248,700 of government money from the UK Government's Green Recovery Challenge Fund

- 01.11.22 Opening school doors to nature in North East England - "Over the past 12 month, the British Ecological Society (BES) has been delivering green transformations to primary schools in North East England, creating wildflower meadows, hedgehog highways and setting up camera traps to connect school children to nature."
- 16.12.22 Green transformation day held at Durham primary school - "Last week the British Ecological Society (BES) held a 'green transformation' day at Laurel Avenue Primary School in Durham, where pupils took part in tree planting, bird watching, and nature based activities"
- 16.03. 23 Schools across the North East recognised for their commitment to welcoming nature into school grounds - "On the 14th March 2023 the British Ecological Society celebrated the resounding success of their 'Connecting School to Nature' project which has seen over 5,000 primary school children introduced to nature within their school grounds"

The project was featured externally via the following publications:

- 19.12.22 Durham Magazine Exploring Nature: North East School Children Get Closer to the Environment - Durham Magazine - "Pupils from across the North East have been getting closer to nature thanks to a pioneering scheme run by the British Ecological Society."

- 27.12.22 Yahoo! Sport How County Durham children are getting close to nature by planting their own woodland - "Pupils at a Durham school are among thousands across the North East getting closer to nature thanks to a pioneering scheme run by the British Ecological Society"
- 27.12.22 The Northern Echo - Durham children plant their own woodland on 'Green Transformation Day'- "Pupils at a Durham school are among thousands across the North East getting closer to nature thanks to a pioneering scheme run by the British Ecological Society."
- 29.12.22 The Shields Gazette - 'Green transformation' and wildlife boost at Jarrow's Dunn Street Primary School - "Pupils at a Jarrow school were among thousands across the North East getting closer to nature as part of a pioneering scheme run by the British Ecological Society."
- 15.03.23 Durham University - Connecting schoolchildren with nature - "We're proud to have helped more than 5,000 schoolchildren connect with nature. Our MammalWeb project has worked with the British Ecological Society (BES) on its Connecting Schools to Nature project."
- 16.03.23 Mirage News - Connecting schoolchildren with nature | Mirage News - "The project has seen 72 schools across North East England – from North Yorkshire to the Scottish Borders – introduced to nature within their own school grounds."

The "Connecting Schools to Nature in the North-East" project was shared via social media to promote job opportunities created, digital development tenders e.g. for the BES Encounters platform development, to communicate the successes of the project and to recruit schools and volunteers. The following twitter handles were used:

@BritishEcolSoc (43.7k followers) - 47 tweets including twitter feeds

@BES_Careers (13k followers) - 19 tweets

@MammalWeb (1,533 followers) and @SMASHfestUK (1,998 followers)

CHAPTER ONE: JOB CREATION / RETENTION

1.1 EMPLOYMENT: STAFF AND CONTRACTORS

A key component of the project was to create new roles with opportunities for training to enhance an individual's career progression. The project originally set out to create 6 roles; however, due to the expansion of the scale of the project following its early success, 8 new roles have been created in total. All individuals employed in these roles have had a substantive program of training and other support available to help their own professional development and career progression in this sector. In addition, the project has employed contractors - including many local to the North-East region, helping to boost the local economy.

Jobs created

The project has provided eight newly created, fixed-term staff positions within the Society. This is above the six positions originally intended as part of the initial project application. This includes:

- Project Officer (20-month contract, duration of project, project delivery lead). This employee is local to and was based in County Durham for the project duration. The contract of the Project Officer has been extended nine months past the completion date of the project at full cost to the British Ecological Society. The extension is to support the continued integration of legacy resources into wider Education activities at the BES, and the development of a legacy project to align with the new BES Strategic plan 2023 - 2025.

- Project Assistant (originally 12 month contract, but extended to 20 months duration of project using BES own funds to extend due to their value in delivering the project). This employee was based in Newcastle for the duration of the project.

-Project Interns x6. All project interns were provided with fixed term paid positions and were remote working (though given local in-person opportunities for development). Interns 2 and 3 were provided with two-week contract extensions to help finish delivery of Module 2 of the project. They were also involved in the delivery of some of the school workshops and a number of project planning days. Intern 5 was from Middlesbrough and was based in the region for a portion of the project. Intern 6 was based in Bristol and travelled to Newcastle for part of the project delivery.

Training for staff

The following training has been provided for hired staff to ensure they develop the key skills required for permanent employment within the sector (or transferable to other sectors) post project completion:

- A Staff Training Budget of £3250 has been used to train all project staff and Project Manager. Training has included the following: (1) Digital Event Management, (2) Developing outreach for pupils with Special Educational Needs, (3) Written communications for volunteer management and impact. (4) Attendance at the Bristol Natural History Consortium “Communicate” conference (5) Attendance at Wellbeing in outdoor and environmental education conference (6) Engagement with Impact (7) Managing volunteers (8) Bid writing

- In-role training provision by Project Manager (line manager) for all hired staff was also provided. This included Professional Development Plans of personal and professional skills, weekly one-to-one meetings and quarterly review supervision meetings, participation in Society-wide appraisals, impromptu careers coaching (e.g., CVs/cover letters/interviews/general careers awareness), skill share sessions (science communication and wider skills), networking with wider BES staff members and external contacts as identified. All team members employed during the time of the BES

Appraisals took part in the process and received feedback and support for next steps on increasing skills for future roles.

- The Outreach Project Officer and Outreach Project Assistant were both provided with an additional £1,500 (pro rata, per annum) Personal Training Budget by the BES itself for supporting their own development. This training is as follows:

Outreach Project Officer: Evaluation of Engagement, Engage Online Conference, Makaton training course L1 & L2, and Children and Nature Inside Out conference.

Outreach Project Assistant: Evaluation of Engagement, Environmental Engagement in Practice, Project Management, Excel for Finance, Good practice in volunteer management.

Quotes:

"Being part of the project team as an intern has been such a great learning experience for me. I've gained new skills in events management, which was a personal goal of mine to achieve, while also gaining more confidence in my day to day working practices. It has also been great to gain more knowledge in the world of ecology and nature connection outreach, which will no doubt help immensely in my future career ambitions."

(Reflections from one of the Outreach Project Interns)

"As an Outreach Project Intern I helped plan workshops, design teaching resources, and developed the 'encounters' platform. To me, the value in this project was the diverse audience it was aimed towards. Whether discussing how to engage with an audience with undergraduate volunteers, or gauging how best to explain wildlife science to KS1 students, I found my science communication skills were constantly being developed through my need to adapt to different levels of understanding. Moving forward, I find I often utilise these engagement skills in my current position as a Science & Policy Officer, where it is vital I can make science as accessible as possible for a constantly changing audience."

(Reflections from one of the Outreach Project Interns)

"Interning at the British Ecological Society was integral to me understanding what careers I wanted to pursue in the future. Being a part of the Outreach Project team improved my communication skills, gave me experience in event management, and solidified my passion for engaging people with science. It prepared me well for my current role as a Social Media and Media Assistant at Plantlife, and I continue to rely on the skills developed at the BES in this role."

(Reflections from one of the Outreach Project Interns)

The team members have been highly successful in securing new roles within a range of organisations and job titles:

STEM Events and Projects Coordinator
Science & Policy Officer
Further study e.g. Masters degree
Social Media and Media Assistant
Engagement Officer
Contract extension with the BES

Recruitment of suppliers

The following suppliers were recruited within the North-East of England to support the delivery of the project.

- Rhombus Technology carried out the digital development of the BES Encounters Platform following competitive tenders and quotes sought from digital developers outlining the scope of work. Rhombus Technology is based in Durham
- Gavin Forster photographer - based in the North-East of England and carried out photography at Laurel Avenue Primary School and the Celebratory event
- Hancock; The Great North Museum for Celebratory Event and training events
- Training events at Gosforth Nature Reserve, Hemlington Lake and Recreational Centre, Rainton Meadows Nature Reserve, and Berwick Community Trust
- Photoline in Newcastle for all project printing needs
- Gardening and outdoor supplies from Lanchester Garden Centre, Redfox Garden World, and Plants Galore among others.

Project Partners

MammalWeb

The Encounters platform is built on MammalWeb's servers, sharing the existing databases and making use of much of MammalWeb's existing Intellectual Property. Protocols for user management, data upload and article editing are, thus, common across MamamlWeb and Encounters. MammalWeb team members worked with the BES project team and the IT contractor to develop the design principles of the platform, and to implement ways to register and manage classes and schools through MammalWeb's 'projects' facility. MammalWeb Team members also contributed to training webinars and events. In turn, MammalWeb has benefited directly through the provision of camera trap data, and indirectly through increased publicity for and awareness of the MammalWeb project and platform. The MammalWeb team have been involved in all project partner meetings and throughout the decision making processes and delivery.

Smashfest

Smashfest UK have had a key role in the initial co-design processes of developing the schools workshops, training and delivery of modules. The SmashFest team have been involved in all project partner meetings and throughout the decision making process and delivery.

Both MammalWeb and SmashFest are involved in continued discussion around the legacy of the project, including the resources developed, additional funding opportunities, and a legacy project moving forward.

1.2 RECRUITMENT OF SCHOOLS AND VOLUNTEERS

For this project, we originally set out to recruit 50 primary schools across North-East England and 50 volunteers to act as environmental educators, helping to deliver various aspects of the program. To meet our goal of involving a wider range of people in ecology and nature, we recruited schools based on specific selection criteria and took on environmental educators from a range of backgrounds and career paths. Due to the success of the project, and the demand and enthusiasm from schools and volunteers, we surpassed our original goal and recruited 72 schools and 65 active volunteers.

School recruitment

Upon launching the project, the team designed a wide-reaching recruitment campaign in order to reach our target schools. Official adverts were placed on BES channels, including social media and the main website. The team worked with a number of local networks including local universities, societies, charities, school networks, voluntary boards, wildlife trusts, and other primary science contacts and organisations to reach a wide range of schools in the North-East region. Schools completed an application form which asked questions about their school's characteristics, the reflections on their own connection to nature and knowledge of UK wildlife, and what outdoor activities they already ran.

As the aim of our project was to involve a wider range of people in ecology and local nature, we selected participating schools based on ranking of 6 different measures:

- (1) The percentage of pupils on free school meals
- (2) The indices of multiple deprivation (IMD) from the area the school was located
- (3) The percentage of pupils from ethnic minority backgrounds
- (4) How much time pupils spent outdoors at school
- (5) Teacher's knowledge of UK wildlife
- (6) Teacher's connection to nature

Schools who ranked the highest on measures (1) and (3) and lowest on measures (2 - the lowest decile indicates areas of highest deprivation), (4), (5) and (6) were chosen to take part in the project. The first three of these measures were chosen because reports suggest that children in areas of high deprivation and children from ethnic minority backgrounds have less access to, and spend less time outdoors in nature, than other groups - with this inequality being intensified due to the Covid-19 pandemic (see Natural England report). The latter three measures were chosen, as we wanted to reach pupils who were not currently accessing outdoor space at their school or spending time learning about nature, due to either general school practices (e.g., schools with no forest school provision, which therefore provided pupils with relatively little time outdoors) or lack of knowledge/skills/confidence from teachers to lead lessons outdoors or on the topic of local wildlife.

Overall, 139 schools applied to be part of the project, with 50 being taken on at the start of the project, a further 8 joining from September 2022, and 14 participating in teacher training sessions and accessing resources. An interactive map of participating schools (shown in Figure 1) can be found here. All schools who participated in our project were state primary schools and we engaged with all year groups from Reception (age 4-5) to Year 6 (age 10-11). Our schools were a mix of urban and rural schools with a range of sizes and quality of school grounds. The average % of pupils on free school meals was 41% (Range = 5-100%) and the average IMD Decile was 3.61 (Range = 1-8). The average % of pupils from ethnic minority backgrounds was 16% (Range = 0-70%).

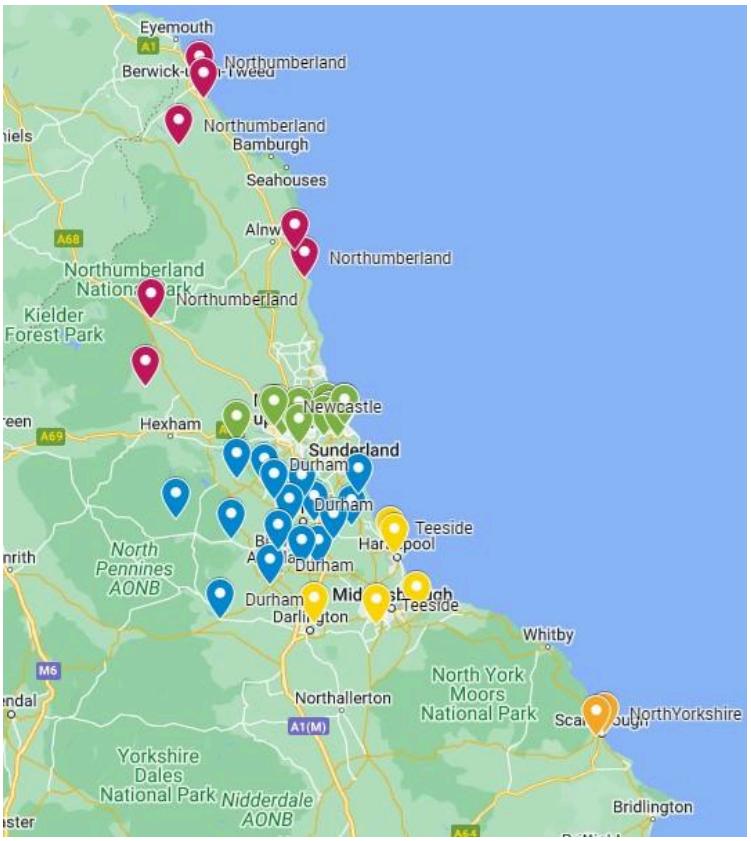


Figure 1

Environmental educator recruitment

At the start of the project we also ran a campaign to recruit volunteers for our 'environmental educator' roles. We advertised the opportunity on BES channels, including social media and the main website, and worked with local universities and other organisations to disseminate the advert widely. Volunteers filled in an application form online with questions about their career to date, their experience level, and what they would like to get out of the project. Unlike our process for schools, we did not have set criteria for recruiting volunteers other than that they were based in, or able to travel to North-East England. In addition to the recruitment campaign at the start of the project, we ran another open call for volunteers in August 2022 to coincide with the new academic year. Overall, 106 volunteers applied to the project, with 74 accepting a place on the project and 65 actively engaging with activities in one or more modules. Of the 65 active volunteers, 56 were early career students (undergraduates or postgraduates) and 44 stated they had no or limited experience in primary school outreach or public engagement.

1.3 UPSKILLING EDUCATORS: TEACHERS AND VOLUNTEERS

Teachers and volunteers who participated in our project have taken part in a diverse training programme, which has included both online and in-person sessions. Teachers and volunteers have also had access to a wide-range of resources via the Encounters platform, including lesson plans and tutorial videos on different topics. On top of the training program, the project offered unique opportunities (e.g., visits to schools for volunteers) to gain skills and experience that are not readily available elsewhere. Through a combination of all of these elements, both teachers and environmental educators have gained skills, knowledge and confidence that they can take forward either in their classrooms (for teachers) or in their future careers (for volunteers).

Teacher training

For teachers, we aimed to create a training programme that empowered them with the tools and knowledge needed to incorporate nature-based activities into their school timetable. To encourage a whole school approach, we invited colleagues and wider school staff to these training events as well. This way, staff members could work together to help roll the project out across more than one class, and provide an avenue for the school to engage in legacy activities for after the project. Additionally, we adopted an open door policy for our module 2 training sessions, welcoming in new schools that had not previously been involved. The full teacher training programme and topics covered can be found below:

Module 1

- Project welcome session: meeting the team and environmental educators, understanding project goals, the importance of connection to nature and teaching ecology
- Codesign session 1: project logistics and making the most of your new outdoor equipment
- Codesign session 2: planning your own Mammal Challenge Week
- Digital platform training: setting up an account, navigating the platform & top tips
- Plus a series of optional webinars on citizen science, green transformations and using the Encounters platform

Module 2

- Module 2 orientation session
- Connecting pupils to nature: embedding green learning in your school. Hosted at:
    - Berwick Community Trust, Berwick-Upon-Tweed
    - Hemlington Lake and Recreation Centre, Middlesbrough
    - Rainton Meadows Nature Reserve, Durham
    - Gosforth Field Studies Room, Newcastle

Module 3

- Encounters digital platform training: new features and content

Teachers' skills and confidence

In Figure 2, we summarise data collected from the end-of-project questionnaires completed by teachers. Of the 46 teachers who completed this questionnaire, most responded that they 'strongly agreed' or 'agreed' with all statements about gaining knowledge, skills and confidence throughout the project. Furthermore, although training efforts were concentrated on the lead teacher for each

school, many have shared their learnings and experiences from the project with other teachers and colleagues.

This feedback from training sessions, demonstrates how the training helped schools get the most out of the project and will be beneficial moving forward beyond the project:

"Fantastic practical opportunities. Great ideas for teaching. Excellent links to funding and making dreams a reality! Thank you!!"
(Anonymous feedback from teacher training session)

"Very informative and introduced us to new technologies. Great resources and support available. Looking forward to using the camera and MammalWeb."
(Anonymous feedback from teacher training session)

"Teachers don't need to try and find resources for nature related activities as we now have many which helps with teaching."
(Lead teacher from Barnard Grove Primary)

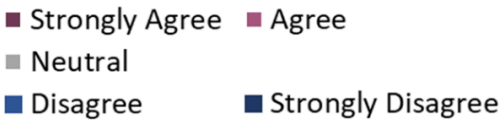
"Absolutely brilliant! Great info about resources I didn't know about – will definitely use!"
(Anonymous feedback from teacher training session)

"Very useful training. Lots of practical ideas to carry out with the whole age group. Lots of new information. Appreciated opportunity to talk with others and share experiences. Thank you!"
(Anonymous feedback from teacher training session)

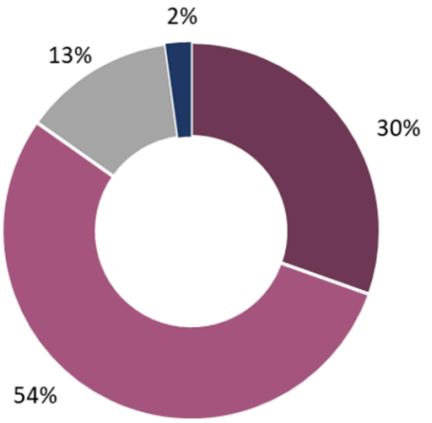
Teacher skills, knowledge and confidence

In surveys completed after the project we asked teachers how much they agreed or disagreed with a range of statements on skills, knowledge and confidence gained during the project.

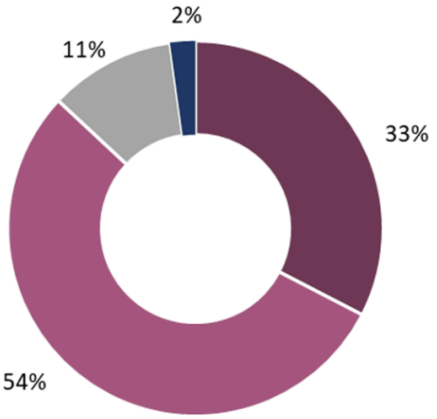
n = 46



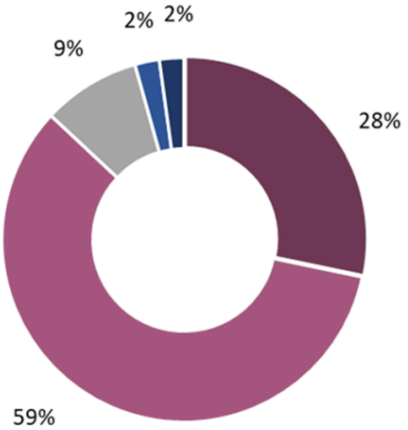
"I have gained new ecological knowledge"



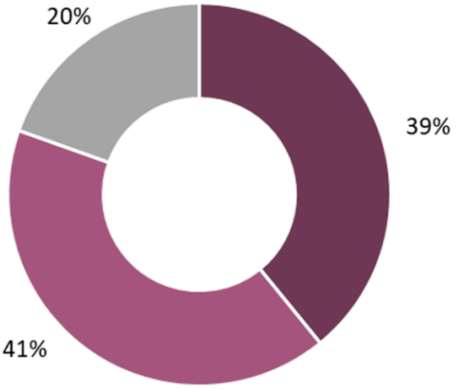
"I have increased my confidence in teaching ecology"



"I have increased my confidence in teaching outdoors"



"I have increased my confidence in teaching about environmental careers"



"I have increased my confidence in transforming school grounds for wildlife"

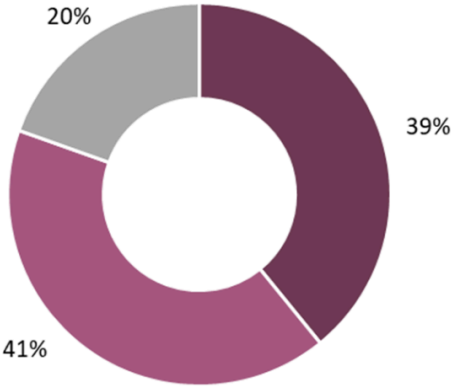


Figure 2

Environmental educators training and contributions

As part of the voluntary role, environmental educators attended a number of training sessions throughout the different modules, covering topics such as science communication, basic safeguarding and designing outreach activities. A summary of the full training programme can be found below:

Module 1

- Project welcome session: meeting the team and schools involved, understanding project goals and the importance of connection to nature
- Codesign session 1: creating a virtual assembly
- 1-1 feedback on assembly plans
- Codesign session 2: essentials of working with schools and basic science communication techniques
- Digital platform training: setting up an account, navigating the platform & top tips
- A series of webinars on citizen science, green transformations and the Encounters platform

Module 2

- Module 2 orientation session
- Science communication masterclass at the Hancock museum: designing interactive activities, organising your own outreach events, & top tips for effective science communication
- Drop-in session: module 2 workshops & how to get involved

Module 3

- 1-1 catch-ups and onboarding meetings with new volunteers to cover the essentials
- Module 3 Training day at Gosforth Nature Reserve: bird ID skills, understanding the national curriculum, module 3 workshop content and how to run your own events
- Digital platform training: new features and content

Workshops:

Alongside creating content for the Encounters platform, the volunteers played a crucial role in supporting the delivery of our schools workshops. In Module 1, these took a digital format, with educators creating virtual assemblies as part of each schools' designated 'Mammal Challenge Week'. This served as an introduction to designing activities and content for younger audiences, as well as introducing volunteers to local schools.

In subsequent modules, volunteers provided on the ground support at the in-person school workshops. Over the course of 57 in-person workshops, 25 volunteers got involved, sharing their knowledge and helping to guide pupils through the different activities. Not only did this allow BES staff to work with larger class sizes, but it meant that each workshop benefitted from the particular strengths and interests of the attending educator, who could act as a local role model to pupils. A number of individuals also built up their confidence over time, taking part in multiple workshops per module and eventually leading their own sessions by Module 3.

Wider opportunities and case studies:

Many volunteers have taken their involvement further, seizing opportunities to build on their experience by applying their newly developed skills and confidence in new areas. For example, various sub-groups of volunteers have formed over the course of the project to help deliver wider

public engagement activities, such as our NUSTEM Primary Careers Tool resources, our project exhibit at STEMFest 2022 in Newcastle, and helping to run stalls for both pupils and teachers at our end-of-project celebration event. We also have anecdotal evidence of volunteers pursuing further opportunities in the sector, or incorporating some of the project themes into their academic plans. For example, one volunteer has subsequently applied to the BES Outreach Grant, in order to continue working with schools as well as other marginalised groups around the theme of nature connection and ecology. The team has also provided a number of references for educators looking to move into teaching and other education-related roles within the region. Two of our volunteers have written about their experiences of the project and the impact it has had on them in articles published on our website: Will Sheel and Mateo Lewis.

Some of the quotes below highlight the varied impacts and future plans that educators have had since joining the project:

"Thanks again for the chance to be involved. I'm hoping to get into a MSc or PhD in future, and equity / benefits of nature access for children is an area I'm looking to focus on - the project really solidified this interest, so thank you! I hope its legacy stages continue to have positive impacts for more schools."

(Volunteer email after participating in the project)

"My favourite part of the project was working with schools and the children directly. It's not something I think I would have done otherwise."

(Volunteer answer from end of project questionnaire)

"It was an honour to be a part of today's workshop. I enjoyed every moment of it and was very happy to see how happy and involved the kids were. [It was a] really educational and well-organised session. I'm looking forward to learning more from you and the students as well."

(Volunteer comment after taking part in pupil workshop)

"Inspiring day at #STEMFestNetZero with @BritishEcolSoc and @rtcstem sharing my role as a marine mammal scientist. Great to engage so many North East students in ecological and net zero #STEM careers!"

(Volunteer tweet after taking part in public engagement event)

"There is nothing more rewarding than conquering your fear and turning it into something truly positive, truly valuable. I have gotten so much more out of volunteering than I have put in, it has given me that which defines ecology itself- connection"

(Comments from Will Sheel in an article written for the BES website)

Environmental educator skills and confidence

In Figure 3, we summarise data collected from the end-of-project questionnaires completed by environmental educators. Unfortunately, the response rate for this final questionnaire was comparatively low. This was likely due to the fact that many of our volunteers had left the project at the end of the delivery phase and a lot of our student volunteers had since graduated or moved on. However, of the nine volunteers who completed the questionnaire, all 'strongly agreed' or 'agreed'

that they had gained knowledge, skills and confidence in various topics; as well as the majority agreeing that they had gained insights into careers within the sector.

Environmental educator skills, knowledge and confidence

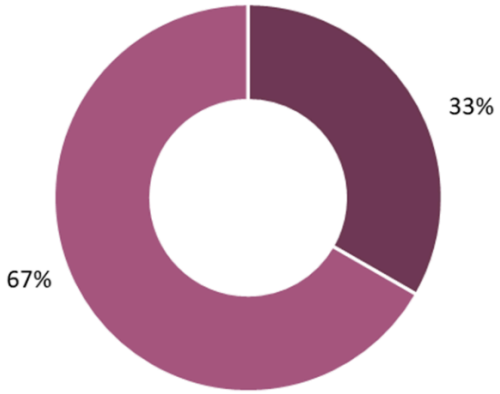
In surveys completed after the project we asked our environmental educators how much they agreed or disagreed with a range of statements on skills, knowledge and confidence gained during the project.

n = 9

Strongly Agree Agree
Neutral
Disagree Strongly Disagree

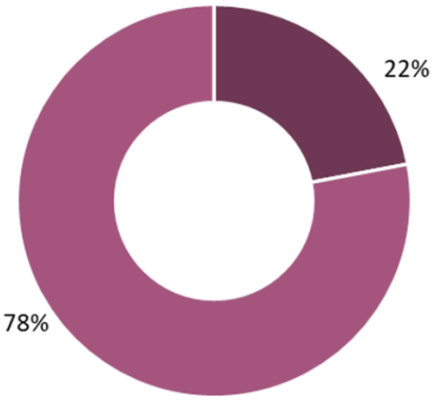
"I have gained knowledge about science communication methods"

"I have gained knowledge about methods of environmental education"



"I have increased my confidence in using my science communication and outreach skills"

"The knowledge and skills gained will benefit me in the future"



"I have gained insights into careers in science communication and outreach"

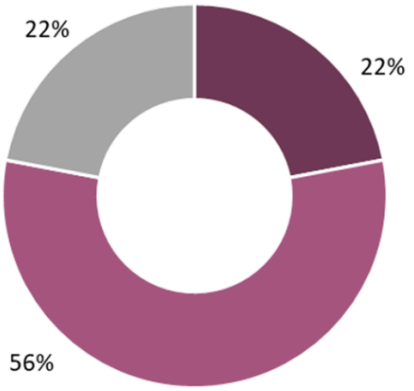


Figure 3

CHAPTER 2: CONNECTING PEOPLE WITH NATURE

2.1 INCREASING CONNECTION TO NATURE AND KNOWLEDGE OF LOCAL WILDLIFE

Throughout this project, we aimed to connect people with nature and increase knowledge of local wildlife, focusing on two key groups: teachers and pupils. This has been achieved through the combination of all aspects of the project, including our training program, pupil workshops, the Encounters platform and green transformations. Evidence suggests that connection to nature and mental well-being are explicitly linked and, therefore, we also include our findings on how the project improved mental well-being. Finally, although our efforts focused on improving connection to nature and knowledge of UK wildlife in teachers and pupils, there was evidence that our project also had benefits for a wider range of people including parents of pupils; we discuss this in the final section of this chapter.

Teachers: connection to nature and knowledge of wildlife

Teachers were asked to self-reflect on their own connection to nature and knowledge of UK wildlife before and after the project. Figure 4 and Figure 5 show the distribution of scores over the course of the project, with the average score for both connection to nature and knowledge of UK wildlife increasing, and the majority of teachers (whom we could track) showing an increase in scores post-project. Differences in scores for both connection to nature and knowledge were statistically significant. It should also be noted that although 18 teachers scored the same or a decrease in either CTN or knowledge scores, 12 of those teachers did not complete the full project (or did not answer the final questionnaire). This suggests that teachers that engaged with the full 12 months of delivery gained the most benefits in terms of their own CTN and knowledge of UK wildlife.

These reflections from teachers further demonstrate how the project has helped their own development:

"As the Life Skills Leader for our school, we have loved it all and participated in many tasks in other areas even though we joined at the birds section. The bird identification and spotting has been a favourite for myself and the children as it's an area I was very weak in so feel I've been taught myself too."
(Lead teacher at West Denton Primary)

"Staff have had outdoor teaching ideas and interest reawakened, as well as improved motivation."
(Lead teacher at Cassop Primary)

"The camera trap and the footprint tunnel produced the most excitement from both children and other teachers." *(Lead teacher at Holy Trinity First School)*

"I have enjoyed developing my own knowledge."
(Anonymous)

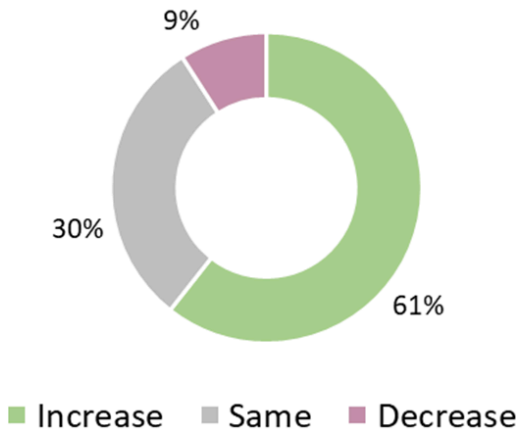
Teachers' connection to nature

In surveys completed before and after the project we asked teachers:

"On a scale of 1-10 (with 10 being the highest), how connected to nature would you say you are?"

Individual changes

n = 33



Average scores

Pre-project n = 58

7.07

Post-project n = 46

7.91

t(102) = 3.00, p = 0.003

Distribution of scores

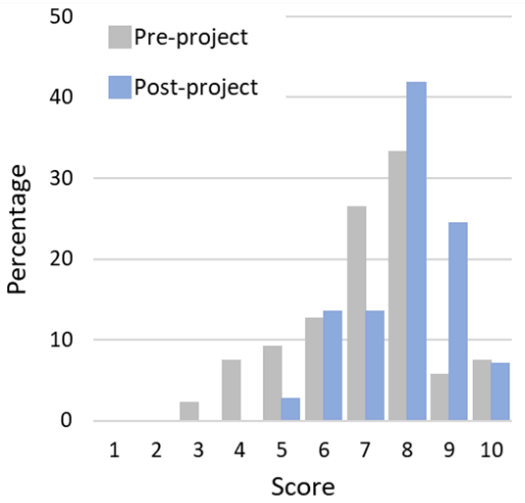


Figure 4

Teachers' knowledge of UK wildlife

In surveys completed before and after the project we asked teachers:

"On a scale of 1-10 (with 10 being the highest), how good would you say your knowledge of UK nature and wildlife is?"

Average scores

Pre-project n = 58

5.48

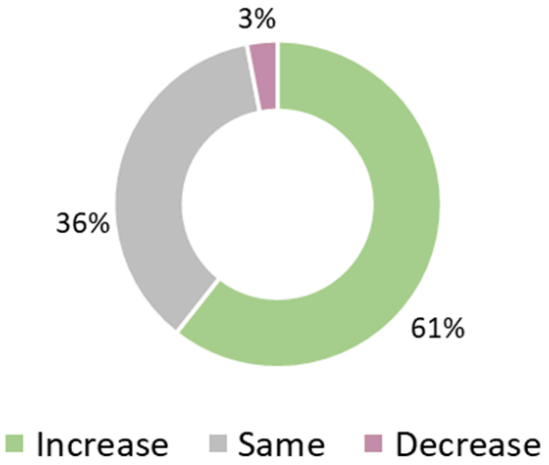
Post-project n = 46

6.78

t(102) = 5.01, p = < 0.001

Individual changes

n = 33



Distribution of scores

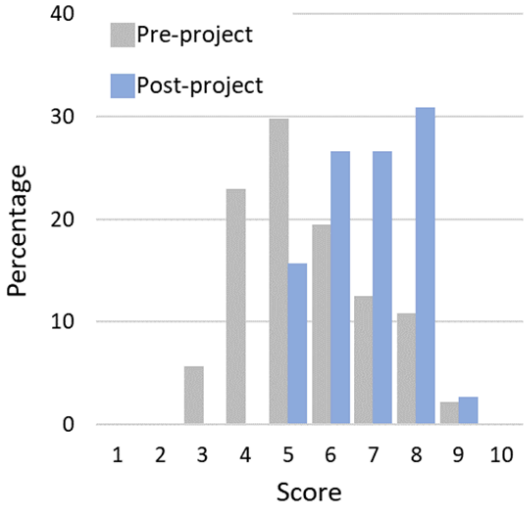


Figure 5

Pupils' connection to nature scores

We used the connection to nature scale proposed by Cheng and Monroe which is a commonly used and validated scale to use with children aged 7-11. In line with findings from other studies (e.g., https://doi.org/10.1016/j.jenvp.2019.101381), average connection to nature scores were high pre-project with an average score of 4.29. Whilst high baseline connection to nature scores can make it difficult for change to occur (due to ceiling effects), in Figure 6 we show that pupils' connections to nature scores increased significantly over the course of the project. Post-project, there were no pupils scoring below 3 on the scale and over 50% of pupils scored between 4.51 and 5.00.

Pupils' connection to nature

In surveys completed before and after the project pupils completed the connection to nature scale. Taking an average of answers on the scale gives an overall score of between one (least connected) and five (most connected).

Average scores

Pre-project n = 123

4.29

Post-project n = 141

4.41

t(262) = -1.99, p = 0.047

Distribution of scores

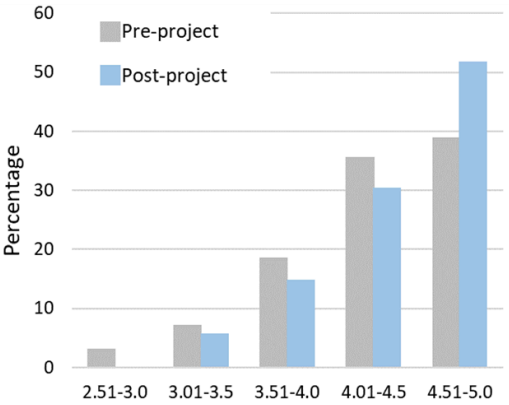


Figure 6

Pupil's ecological knowledge

Before each module, children on average could name around 5-6 species correctly, with mammals having the highest score for correct answers. The number of species children could correctly identify from photos increased for each module with this increase being highly significant (Figure 7).

Pupils' knowledge of UK species

In surveys completed before and after each module, pupils were asked to identify 10 UK species from photographs.

Average scores

Mammals

Pre-module n = 160 *Post-module n = 136*

6.91 **7.85**

t(369) = -8.81, p = < 0.001

Invertebrates

Pre-module n = 243 *Post-module n = 181*

5.33 **7.05**

t(294) = -5.26, p = < 0.001

Birds

Pre-module n = 225 *Post-module n = 190*

5.06 **6.24**

t(413) = -5.49, p = < 0.001

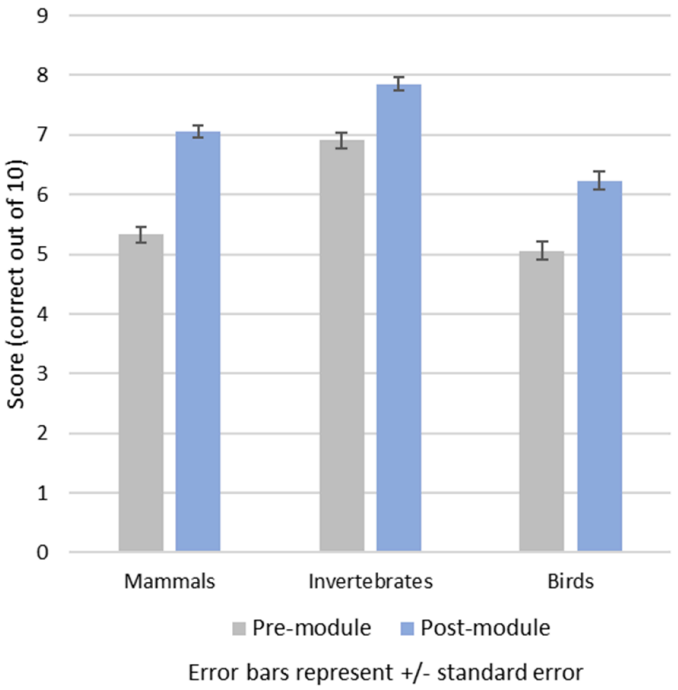


Figure 7

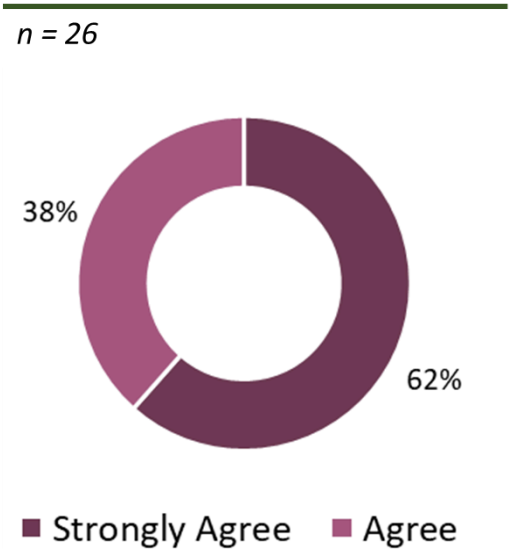
Teacher perspectives

In addition to collecting data from pupils themselves, we also asked teachers for their perspectives on whether their pupils' connections to nature and knowledge of UK wildlife had increased as a result of the project. As Figure 8 shows, 100% of teachers agreed that both had increased.

Pupils' connection to nature (teacher's perspective)

In surveys completed by teachers after the project we asked to what extent they agreed or disagreed with the statement:

"As a result of the project, my pupils are more connected to nature"



Pupils' ecological knowledge (teacher's perspective)

In surveys completed after the project we asked teachers to what extent the agreed or disagreed with the statement:

"As a result of the project, my pupils have gained ecological knowledge"

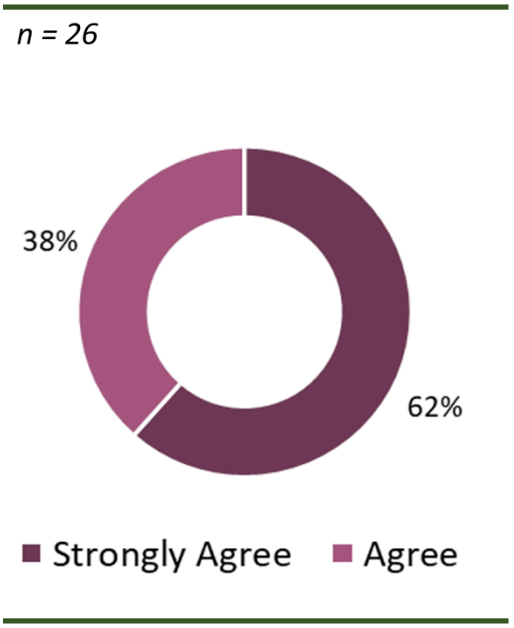


Figure 8

Some of the reflections from teachers about how pupils engaged with the project provide further insight into how children became more connected to nature and gained ecological knowledge as a result of their involvement:

"[The project has] given the children the chance to explore their local environment because they don't always appreciate what is around them and why it is important to care for it."

(Lead teacher at New Brancepeth Primary)

"This [project] has changed the way our children look after our environment. Children regularly ask for the litter pickers and to look after our hedgehogs daily. They are excited to learn and to know more about the natural world."

(Lead teacher at Dunn Street Primary)

"[Pupils] are more enthusiastic about outdoor learning and are constantly asking when we will do it next"

(Lead teacher at Monkton Academy)

"[Children have a] better understanding of wildlife. Some of my children (Y3) did not know that foxes lived in this country until spotted on the camera trap."

(Lead teacher at Our Lady of Lourdes Catholic Primary)

"They have become more aware of the wildlife that is around them, particularly within our urban environment- the misconception they had about wildlife being in the 'countryside only' has diminished, which is excellent!"

(Anonymous)

Perceptions of ecology

The overarching aim of the British Ecological Society is to raise the profile of ecology. For children, this starts with an early understanding of what ecology is, what ecologists do as scientists, and how ecology can help the environment and local wildlife. As shown in Figure 9, most children did not know what ecology was prior to the project. Through engaging with the project, children's answers to what ecology meant to them changed substantially, with most answers post-project mentioning the environment or nature.

Pupil's perception of ecology

In surveys completed before and after the project we asked pupils:

"What does the word 'Ecology' mean to you?"

Top 50 words appearing in answers

Of the answers given pre-project:	Of the answers given post-project:
34% were "Don't know"	8% were "Don't know"
26% included the word "Nothing"	0% included the word "Nothing"
21% mentioned "Nature" or "Environment"	55% mentioned "Nature" or "Environment"

Figure 9

These quotes from teachers further demonstrate childrens' prior knowledge of ecology and scientist, and how the project helped change this:

"The children had no idea what the ecology meant and now understand it. They had preconceived ideas of what a scientist was and said that both Sammy and Alexa don't look like scientists, they looked like normal people. The fact that they were both female also challenged the ideas that all scientists are male."

(Lead teacher at Barnard Grove Primary)

"I would like to thank everyone at BES for an amazing project that has really inspired a lot of the children in my school, spreading ecology awareness and making it relevant to the kids by making it very localised to them"

(Lead teacher at Our Lady of Lourdes Catholic Primary)

"The children got to meet a real scientist and were talking for ages afterwards about how they were going to be scientists when they grew up."

(Lead teacher at Westlea Primary

Well-being benefits

There is increased evidence of the well-being benefits that come from being connected to nature. Through connecting teachers and pupils with nature, our project aimed to improve well-being for participants. We asked teachers to reflect on the well-being benefits of the project for themselves and pupils in post-project questionnaires. Over half of teachers agreed that they enjoyed their day-to-day teaching more as a result of the project and that their well-being had improved (Fig. 10). 77% of teachers agreed that their pupil's well-being had improved as a result of the project (Fig. 10).

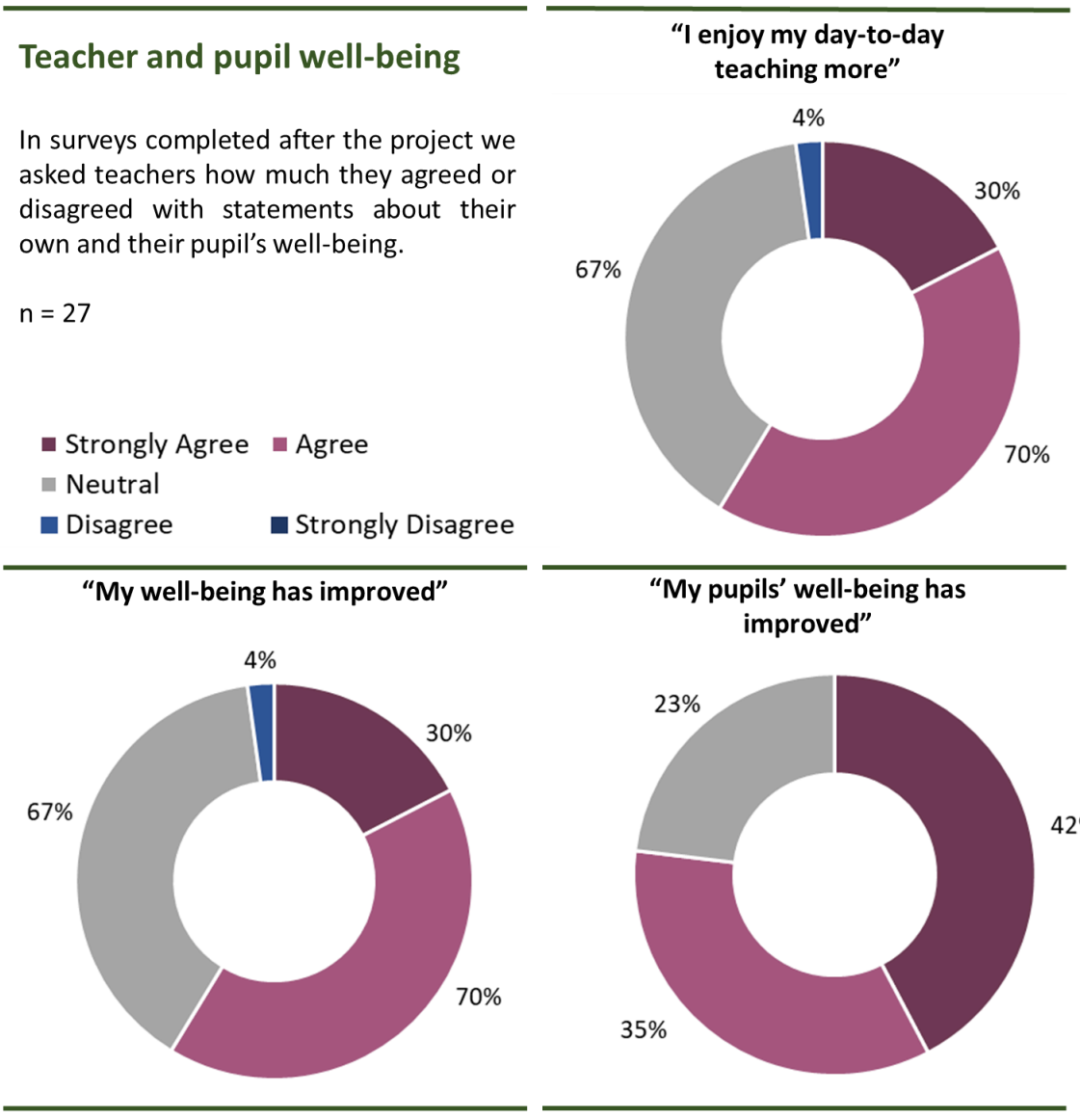


Figure 10

These reflections from teachers demonstrate some of the ways the project has linked to well-being:

"General awareness of our environment and how it links to our wellbeing has improved. Generally becoming a more pleasant place to be, seeing the interest in the change of seasons, children independently being aware of their part in maintaining and developing a healthy ecosystem."

(Lead teacher at Montalbo Nursery and Primary School)

"Increased knowledge of the nature in and around our school grounds and a greater sense of wonder about this - they have absolutely loved finding different areas to place the camera trap and checking what it has captured is met with great anticipation and enthusiasm!"

(Lead teacher at Montalbo Nursery and Primary School)

"This has inspired my class to form a Eco/gardening club and one boy in particular has been able to get really involved with his knowledge and enjoyment of gardening and the outdoors. As he has home life problems, this has given him some focus for his energy."

(Lead teacher at Amble First School)

Impacts on wider community

Although the primary focus of our project was to engage with schools and upskill environmental educators, we also recognised that the project could have had secondary impacts on a wider community. In particular, the parents of pupils who may have heard about the project second-hand from their children, and through hearing how their perspectives, knowledge or attitudes towards nature may have changed. For example, one teacher said:

"[The project] sparked lots of conversation around littering and the impact. We also explored some images of animals that had been impacted by litter and then the children shared their experiences of their family and friends who had littered. One child said 'I told my Mam and Dad all about what littering does and now they said they will put things in the bin.'"

(Lead teacher at Dunn Street Primary)

Children could access their own Encounters platform accounts at home, providing another opportunity for pupils to share their experiences and complete nature-based activities with family at home. One teacher wrote:

"All the children have engaged well, but [two of our pupils] have taken it upon themselves to continue their learning at home. [One child] has been out with their family litter picking, [another pupil] has accessed the BES website at home as well as school."

(Lead teacher at Willington Primary)

2.2. DELIVERING AN ENGAGING DIGITAL PLATFORM

The Encounters platform has been co-designed with teachers and educators over the course of the project. The aim of the platform was to stimulate on-going engagement with the project, by offering a resource for teachers to run their own nature-based activities independently, alongside our main programme of activities. Different versions of the platform have been created at different points in the project, with teachers, pupils and environmental educators engaging with each version throughout.

Design process

Preliminary work led by MammalWeb suggested that schools would benefit from an interactive platform that engaged schools in different activities in-between events and workshops. In particular, introducing a competition or gaming element to online platforms was seen as an effective way to stimulate engagement, particularly for children and young people. With consideration for this, and seeking advice from a smaller focus group of teachers, we created the first version of the Encounters platform. The Encounters platform sits as an independent module on the MammalWeb database (a citizen science platform for uploading and classifying camera trap footage). The two main components of the platform were a badge scheme, where teachers and pupils could complete activities (including activities on MammalWeb such as uploading footage) to earn badges for themselves and points for their school, and a resource hub where teachers and volunteers could download and upload project-related resources (Figure 11).

Teachers and volunteers attended multiple online training sessions showing how to use the platform and were provided with on-going support via email and during visits to schools. Users trialled the platform alongside other project activities. During this time, we collected feedback using questionnaires, during school visits, and via email. Most of the feedback from this stage focused around difficulties using the platform with younger years and difficulties finding resources. We summarised and analysed all feedback to create a ‘wish-list’ of developments.

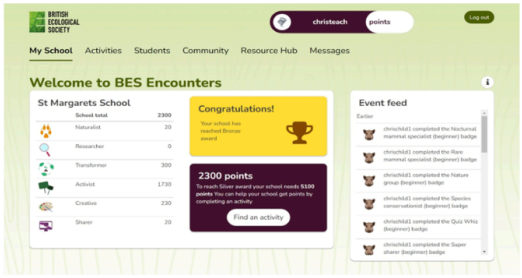
Working with our developer, we designed and subsequently released the second version of the platform ahead of module 2. We then followed the same process, collating feedback and putting forward a list of development requests to inform the next stage of development. The third and final (for this project) version of Encounters was launched in March 2023 and is now open for all schools to sign up to. Further information on the key features of each version of the platform can be found in Figure 11 with a more detailed summary of the final version found in chapter 4 on legacy.

Engagement with the platform

A total of 3,900 activities were completed on Encounters by pupils, teachers, and environmental educators. The majority of these activities (3,219) were completed by pupil accounts. This included pupils logging activities individually or teachers logging activities for all pupils within a class. Some activities (41) were logged by environmental educators - these were educators helping classify camera footage from schools. Figure 12 gives an overview of the different types of activities logged by teachers over the course of the project. Teachers used the project as a mechanism for teaching all aspects of the curriculum including sciences and arts, and for linking up with other projects (e.g., a local climate friendly schools project) to complete badges.

Encounters platform

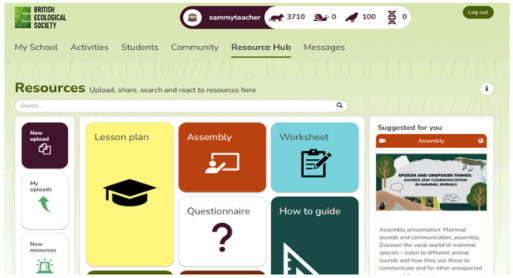
The Encounters platform was co-designed with teachers throughout the project. We went through an iterative process of design, trialling and improving the platform, adding in new features each time following feedback from teachers and other users.



Version 1.

Key features:

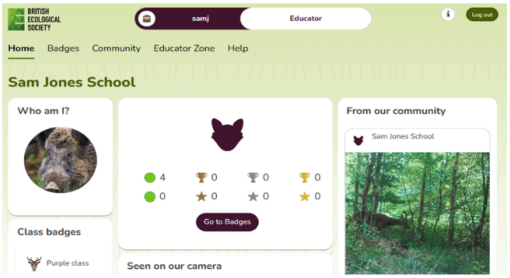
- Three different user accounts set up: pupil, teacher and environmental educator
- Landing page dashboard for your school summarising your progress
- An activities page with a range of different badges to collect when activities are completed by any user
- Bronze/silver/gold awards gained once certain point thresholds are reached
- A community dashboard with charts for school's progress towards awards
- A basic resource hub allowing users to download and upload project-related resources



Version 2.

Key features added:

- 'Kiosk' style versions of the MammalWeb platform created for each school making it easier for younger years to participate
- A new resource hub with sections for different types of resources and the ability to filter by different criteria
- An additional admin user created who can download reports on activity and monitor uploads
- Move towards teachers using platform as a class with pupils using their own accounts independently and not contributing to overall school points



Version 3.

Key features added:

- Streamlined badge scheme with clear progression through bronze / silver / gold levels
- Links from badges to resource hub with easy search and filter options for finding resources to help complete badges
- Easy help guides and walk-through tutorials to get started
- A new community page where teachers can share photos of the nature-based activities they've done
- Capability for any school to sign up with automatic dashboards created for their school and links to their own project on MammalWeb

Figure 11

Encounters activities logged by teachers

134 Transformer Tasks

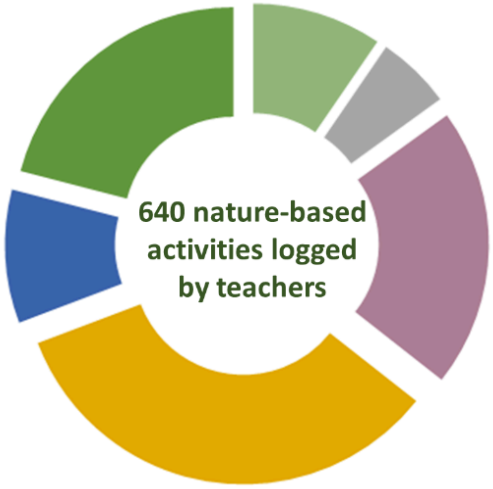
Including: Planting trees and wildflowers, building hedgehog homes and bug hotels, installing bird nest boxes and feeders.

61 Activist Tasks

Including: Creating eco-groups in schools, making species conservation posters and setting up gardening clubs in school.

63 Sharer Tasks

Including: Uploading lesson plans to resource hub and sharing other work with wider community.



35 Creative Tasks

Including: Creating paintings, drawings and artworks of species found, writing poems and writing nature stories.

132 Naturalist Tasks

Including: Completing a range of online species quizzes for various taxa and at various difficulty levels.

215 Researcher Tasks

Including: Uploading and classifying camera trap footage, contributing to citizen science projects and doing bug hunts and bird watches.

Figure 12

These quotes from teachers demonstrate how the platform has been integrated with other aspects of the project to help maximise impact and engagement:

"We've really enjoyed taking part in the project…the children have particularly enjoyed the online platform and learning how to spot mammals. It's given their outdoor learning purpose and their interest in nature has soared."

(Lead teacher at Dunn Street Primary)

"We have completed some of the tasks on the platform now and they are keen to gain some more badges! The resources on the platform are really useful - I need to spend a little more time having a look as there will be some that will be really helpful to my colleagues too."

(Lead teacher at St Matthew's Catholic Primary)

"I have enjoyed the platform and the kids have loved the tasks. It's been lovely picking elements from each module to study."

(Anonymous)

2.3. CREATING NEW EDUCATIONAL RESOURCES FOR PUPILS, TEACHERS AND EDUCATORS

Over 130 different resources are available on BES Encounters. These are grouped into five main types: 1. Lesson plans, 2. Assemblies, 3. Worksheets, 4. How-to guides, and 5. Training materials. The majority of these were created by BES project staff, including lesson plans linking to the various module activities and a series of how-to guides on how schools can jumpstart their own green transformation process. There are also a number of technical how-to guides explaining how to use the platform as well as some key outdoor learning tools like iNaturalist.

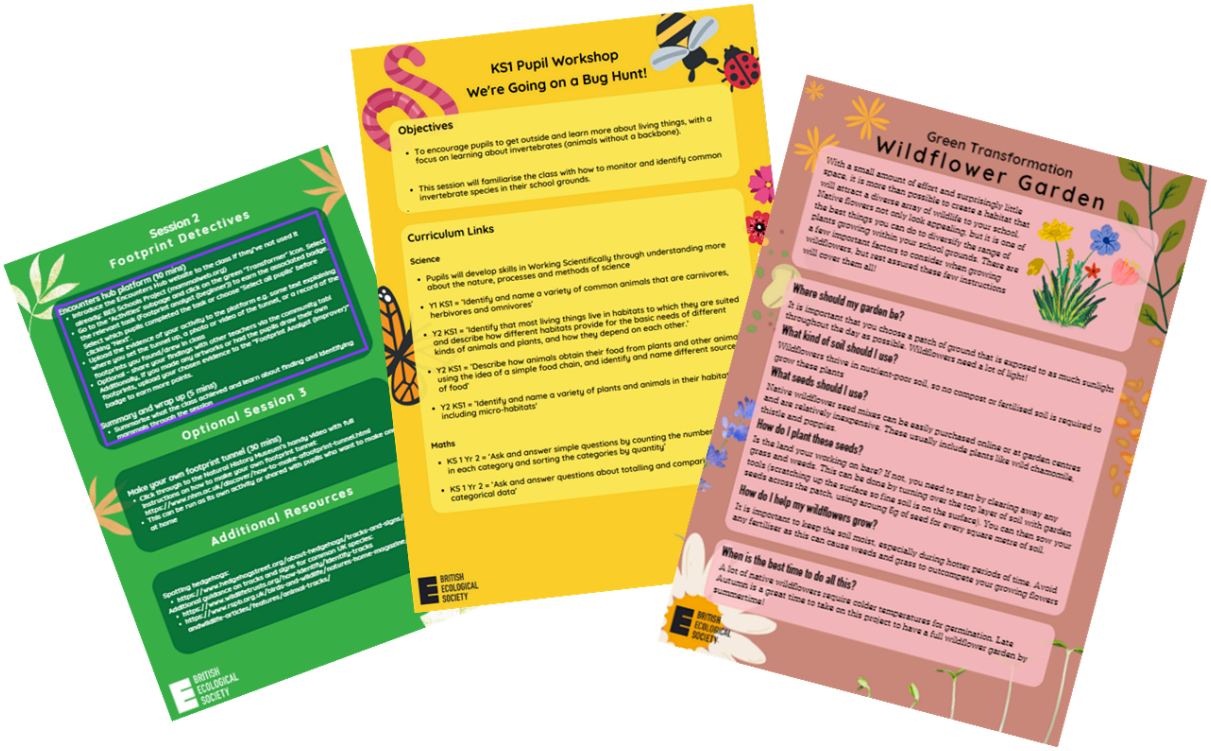


Figure 13

BES resources

In addition to the resources specifically created for this project, a number of pre-existing resources from the BES are also available on the platform. This includes a series of stop motion animations on ecology from Lauren Cook, as well as a number of training materials aimed at early-career ecologists; covering topics like imposter syndrome, designing effective public engagement activities, and understanding the school curriculum.

Environmental educator resources

During module 1, volunteers were encouraged to create a mammal-themed virtual assembly to share with our partner schools. These were 5-10 minute assemblies designed and recorded by volunteers with input from BES staff. Over 20 of these assemblies are now available on the platform, covering topics like mammal communication, adaptation, and what wildlife pupils can find in the North-East. Volunteers continued to contribute resources throughout the project, covering multiple topics and formats. These additional assemblies and worksheets were contributed by Environmental Educators

without prompt, representing over 60 hours of additional volunteering time. This resource creation allowed volunteers to showcase their particular interests and skills, whilst also helping them build relationships with local schools and providing a touchpoint for continued contact.

Co-created resources with external organisations

We also worked with a number of organisations and initiatives in the region to increase the number of available resources on the platform. We extend our thanks to the Wild Oyster Project, Wild Senses, SMASH-UK and MammalWeb for granting us permission to share some of their existing educational resources on the platform, including lesson plans and worksheets relating to local nature and outdoor learning.

The team worked particularly closely with NHSN and NUSTEM to co-create a number of project-specific resources. This included the creation of a local citizen science project on iNaturalist for schools to submit sightings of local ladybird and bee species. The resulting leaflets and ID guides were used in one of our teacher training sessions, as well as helping to boost contributions to NHSN's various citizen science databases. In collaboration with NUSTEM and a group of five Environmental Educators on the project, we also created an environmentally-themed STEM Person of the Week resource pack (Figure 14). The pack provides teachers with everything they need to run a 5-week intervention in schools about STEM Careers. The activity has been shown to reduce children's stereotypes of science and scientists by providing counter-stereotypical character attributes through a set of diverse STEM role models. The environmental educators involved were able to showcase their respective research and careers, with physical copies of the final postcards sent out to each school on the project.

Figure 14

CHAPTER 3: NATURE RECOVERY

3.1 IMPROVING SCHOOL GROUNDS: GREEN TRANSFORMATIONS

Alongside taking part in nature-based activities, our project aimed to improve school grounds to generate benefits for nature itself, and the pupils and teachers who spend time in these spaces. Transformations were achieved through a variety of mechanisms, including giving equipment and resources to schools, working with pupils and teachers to create their own transformation plans, and providing funding for each school to spend on equipment and other resources.

Equipment provided

Each module was launched with the provision of a selection of outdoor equipment. Each participating school received the following equipment:

Module 1	**Module 2**	**Module 3**
- X10 litter pickers - X10 FSC UK Mammals guides - X10 FSC UK Tracks and Signs guides - X2 Footprint tunnels, with charcoal powder and fixing pegs - X1 Camera trap and accessories (cable lock, lithium batteries, SD card, strap)	- Insect poster and mini field guides plus moth and butterfly colouring books donated by Royal Entomological Society - X2 Sweep nets - X2 sampling trays - X1 beating sheet - X40 bug pots with built in magnification - X10 FSC UK invertebrates guides - X10 mini magnifying glasses	- X1 wooden bird box - X1 bird feeding station with pole and 3kg mixed bird seed - X10 FSC Garden Birds guides
In addition, schools used demo equipment at workshops - e.g., binoculars, gardening tools (watering cans, trowels, forks), pooters, plant pots and pollinator-friendly plants, model animals, show-and-tell items, craft activities and displays. These were distributed to schools at the end of the project.		

The equipment provided helped to kick-start nature activities in schools, particularly as many of the schools would not otherwise have the funds or resources to buy this equipment. These quotes from teachers demonstrate the difference the equipment made to their schools:

"Having the right equipment and someone with extensive knowledge was brilliant. The generosity of the project has really made a difference to our school in terms of the equipment we now have - thank you."

(Lead teacher at Wolsingham Primary)

"[The best part of the project has been] access to equipment as this would not be something that the school would have the budget for."

(Lead teacher at the Beacon Centre)

"The equipment has been amazing to use and has enhanced our daily teaching. I have used camera trap images with the whole school and staff who were blown away with what we found."

(Lead teacher at Dunn Street Primary)

Green school grounds competition

Through teacher training sessions and codesign efforts throughout, our partner schools took the time to design their ideal green school. In module 2, both teachers and pupils submitted their designs which were then entered into a prize draw (£100 NHBS voucher) and shared with the wider community via a digital exhibition. The overall winning design (see Figure 15), which included a nature area for wildlife and wind turbines to generate energy, was awarded to a pupil from Cassop Primary School in Durham. We also awarded prizes (£50 vouchers for outdoor equipment) for individual commendation to two other schools, including Best Design to Ewan from Wolsingham Primary (Durham) and Best Idea to Emily from Wark CofE Primary (Northumberland).

The exhibition is still open to the public and can be viewed here: [BES Green Schools Competition - British Ecological Society]

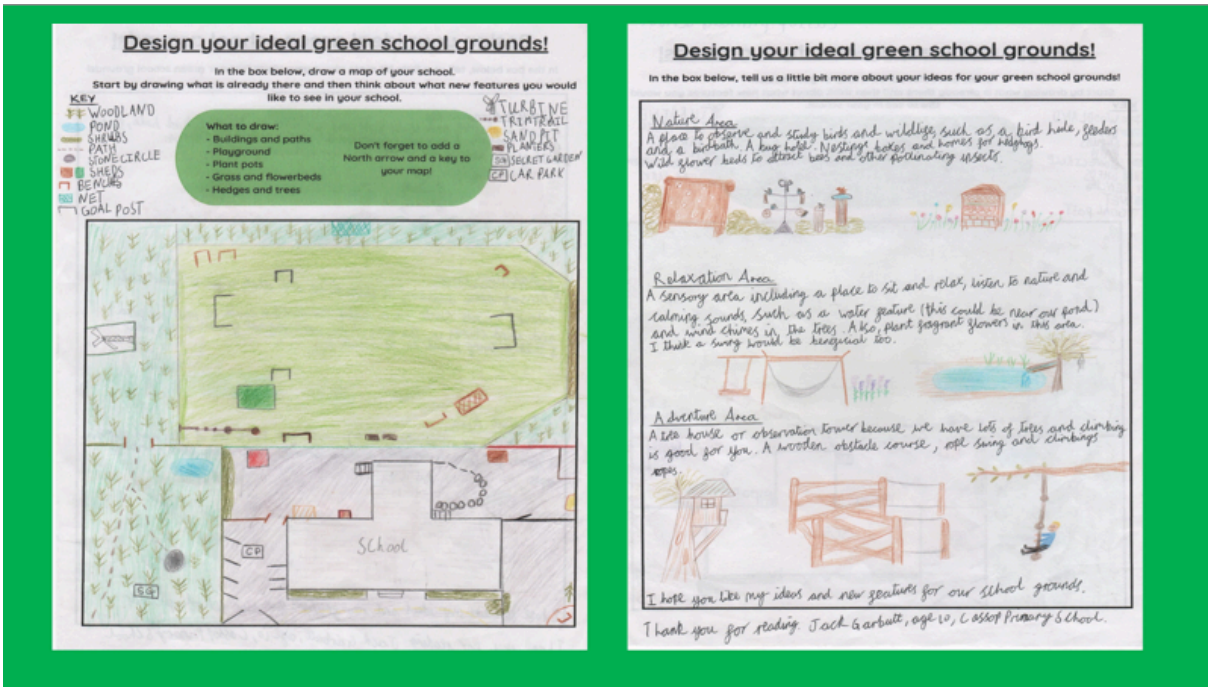


Figure 15

Individual green transformations

Following on from the green school grounds competition, the team launched an open call for Green Transformation funding bids in September 2022. During equipment drop-offs for module 3, teachers were able to chat through their ideas for making their school grounds more environmentally friendly, and were subsequently invited to apply for funding to turn these ideas into a reality. Each school could apply for up to £400. In order to make this a fair process, each school was asked to fill out a short application detailing how they would use the funds, providing a detailed cost breakdown, and explaining how they envisioned the proposed works would benefit the school. This scheme built on previous work conducted at teacher training events and in schools, encouraging pupils and teachers alike to take ownership of their own green transformation process and tailor the project to fit their needs.

A total of 27 schools applied for funding. Each of these requests was approved, resulting in £9692.59 worth of spending. The most popular requests were for bespoke planters, children's gardening tools, and wildflower seeds. Other requests included materials and labour for a pond dipping platform, outdoor nature boards, insect hotels, binoculars, landscaping and rotavator hire, outdoor seating and classroom materials, items for a mini pond, wormeries, and welly boot racks. The table below details a selection of case studies showing what some of our partner schools used the funding for.

West Denton Primary School

Equipment provided: X4 hedgehog homes, X4 hedgehog highways, X8 Food and water bowls.

"Our school is working really hard to become a hedgehog friendly campus and this will help them to look after and respect our natural world. We are hoping to attract the hedgehogs at all different locations on our site, so we can support them to the fullest potential." - Liz McHatton

Kirk Merrington Primary School

Equipment provided: X30 class set of waterproof jacket and trouser suits for ages 7-8.

"One of our key curriculum drivers is that children learn to live healthy lives. As part of this we want children to connect to nature and outdoor learning to improve their wellbeing, promote science and ecology learning and help them develop a love and passion for the natural world. Waterproof clothing will help our KS1 children access the outdoors" - Sarah Bell

The Beacon Centre Primary

Equipment provided: Materials to expand gardening and sensory areas: Various seeds (e.g., basil, mint, lavender, thyme lemon); Plants (e.g., geraniums, wildflower mix); Compost; Timber; Decking and materials (e.g., cast resin, boarding).

"This will provide an inviting space for the children to be calm and relaxed in and connect them with nature. It will support gardening club and outdoor learning across the curriculum. Due to the nature of the children that attend the Beacon centre this will be a space that will provide many benefits to help improve behaviour and provide a place to relax." - Deb Dixon

Brighton Avenue Primary School

Equipment provided: Materials and supplies to transform their unused courtyard into a nature and wellbeing space: Wooden planters and sleepers; Benches; Bird table and bath; Mirrors and free-standing tactile panels. Before and after photos:

"Not all childrens' homes have gardens so we want to create a rich sensory environment in our courtyard for children and staff. We also want to inspire our children in terms of future careers, opportunities, and provide links to our Eco-team and sustainability projects." - Jacqui Kevan

Green transformation day at Laurel Avenue Primary School

In early December, the team ran a Green Transformation Day hosted by Laurel Avenue Primary School in Durham. Pupils from Reception to Year 6 were involved, as well as teachers, wider school staff, volunteers, and project partners, all participating in a range of nature activities. With the help of the children, over 100 native trees were planted to create a new woodland area in the school. Pupils also learnt about the importance of native woodlands and the tree species they planted. Other activities included making bird feeders, nature-themed arts and crafts and birdwatching, with sightings of starlings, robins, and a red kite flying over the school. The pupils thoroughly enjoyed the day, with the lead teacher commending the long-term impact of the event and the children's actions:

"Thank you so much for all your hard work pulling [the event] together. I've had such good feedback from the children and the staff members about it… They have enjoyed the project so much and the development of our school grounds will ensure that future cohorts can continue this outdoor education and learning."

(Victoria Mills, Laurel Avenue Community Primary School)

With thanks to additional funding from the County Durham Foundation and Banks Community Fund, Laurel Avenue continued their green transformation journey through the creation of a sensory garden for their school grounds.

Benefits of green transformations

The quotes below from teachers demonstrate the varied plans for green transformations and the impact it has for the school:

"We entered the school grounds transformation bid. The class decided where to site and this has given them true ownership over the resources and a sustained interest. The outdoor seating has now arrived and looks almost magical in the Secret Garden, and we are all looking forward to using our new outfit classroom area."

(Lead teacher at Cassop Primary School)

"[My plan is] to develop the school grounds to be a paradise for local nature. To encourage as many species as possible. So much inner peace can be gained from being in and around nature. Some of our children come from such trouble home lives, I wish to show them that the natural world around them can be an escape at any time"

(Lead teacher at New Brancepeth Primary School)

"[We created] a sensory area, putting up bird boxes and encouraging wildlife through various flowers and plants. It will give pupils a space to be calm and peaceful, [plus] opportunities to support gardening club which will impact on behaviour."

(Lead teacher at The Beacon Centre Primary)

“We have allocated an area within the schools grounds so that children can complete sampling work. We have [set aside] three, 12x12m areas for cut grass, uncut grass and wildflowers.”

(Lead teacher at Barnard Grove Primary School)

“We created a vegetable garden. Children planted and looked after their growing vegetables. They then harvested all vegetables and used them to make soups during their Forest School Sessions. I planted plants, flowers and trees from the Woodland Trust in our Early Years outdoor area. Children enjoy caring for vegetables and plants they helped planting. They talk about them and all changes that are happening. Plants attracted more insects. Children enjoyed observing them using magnifying glasses.”

(Lead teacher at Laygate Community Primary School)

CHAPTER 4: PROJECT LEGACY

The project's legacy has been considered since the outset, and we have actively worked on establishing an impactful legacy plan in the final phase of the project delivery. We have begun to disseminate our resources, including launching the new Encounters platform at our celebration event and through existing networks, with plans in place for further dissemination and expansion. Aspects of the project's legacy are included within the British Ecological Society's strategic plan, ensuring that learnings and resources from the project will be carried forward into all aspects of the BES education program.

Celebration event

An end-of-project event, held at the Hancock Museum in Newcastle, was organised to celebrate the efforts of everyone involved in the project. The guest list included volunteers, teachers, pupils, funders, project partners, other BES staff, and a range of other groups who had shown an interest in the project. Over 80 people attended, bringing everyone together for the first time under one roof.

Six stalls were run by schools that had been involved in the project, highlighting all the green transformation work the pupils had been up to. We also had project volunteers running stalls on mammals and invertebrates. The stalls gave the guests a chance to see the real differences the project had made to the schools and the invaluable contributions of our environmental educators.

A variety of event speakers represented the different constituencies who had contributed to the project. This helped to showcase the depth of positive impact the project has made to learning, environmental, and wellbeing outcomes. Speakers included the GRCF team, BES chief executive and president, teachers, project partners, and volunteers.

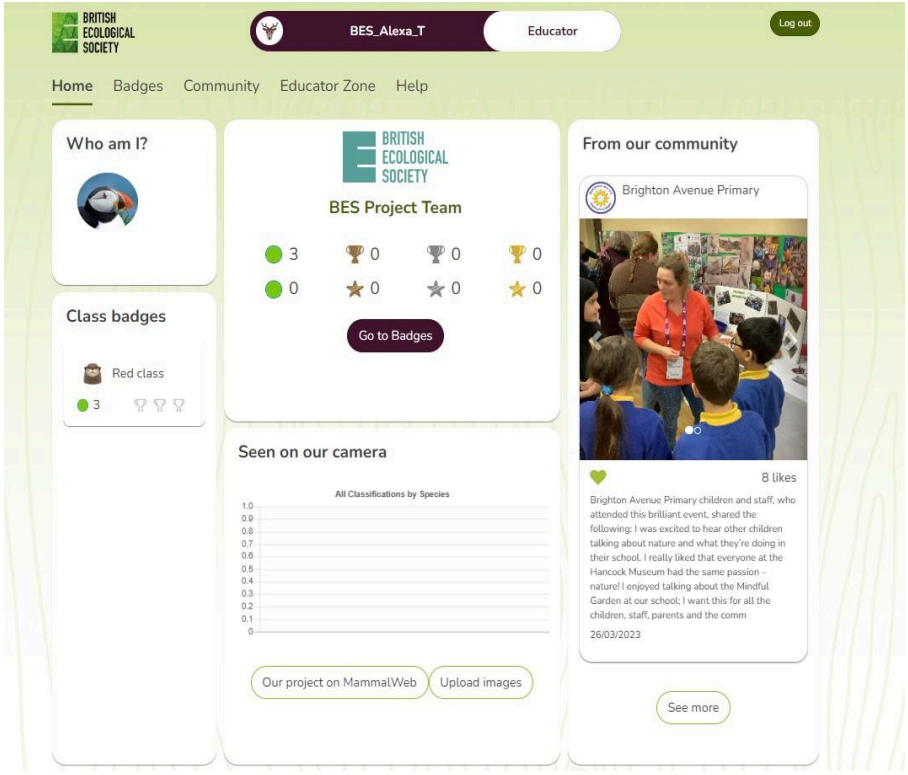
Wrapping the project up in this way has helped to strengthen the project's legacy, showing our appreciation for all who were involved. The feedback from the event was very positive and it was enjoyed by all who attended.

Encounters platform

Our final version of the Encounters platform was released in March 2023 and is free for any school or organisation to sign up to. We will be disseminating the platform via our own networks, including actively recruiting schools outside of the North-East region and attending events (e.g., Durham Primary Science network meetings) to demonstrate the platform to new teachers. We will be running a communications campaign to reach more schools through various media outlets, as well as creating new resources such as a mini-tutorial video at the start. The extension to the Outreach Project Officer's contract will enable the society to dedicate time to establish a network of schools using the platform, while integrating the resource into other aspects of the BES education program. The table below outlines the main components of the platform.

School dashboard

The home dashboard shows a summary of your school's progress, including the number of badges and awards they have earned, as well as any recent camera trap activity (taking data from MammalWeb) and posts made in the community tab.



Badges

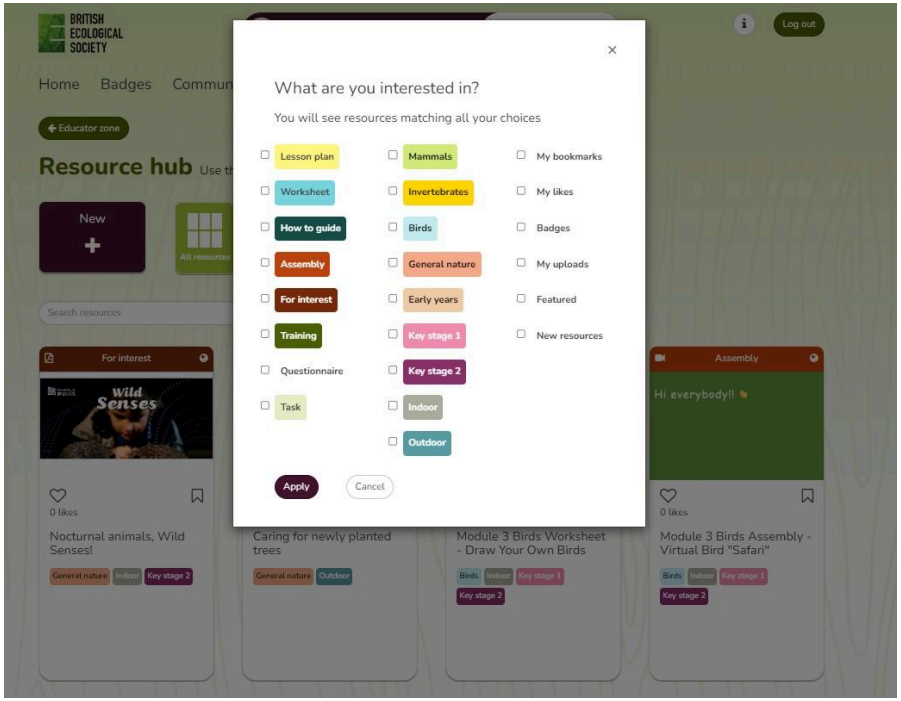
The badges page provides a structure to work through different nature-themed activities. The badges are organised by award, progressing from bronze to gold award, and can be filtered by type of activity or animal taxa. Once the bronze level is completed, schools automatically receive a certificate to download, and silver level tasks are unlocked.

Community

The community page is an open space for teachers, pupils, and educators to share their progress and most recent activities, as well as celebrating what others have achieved. Posts are moderated by BES staff, and external organisations with accounts can also post about upcoming events or opportunities.

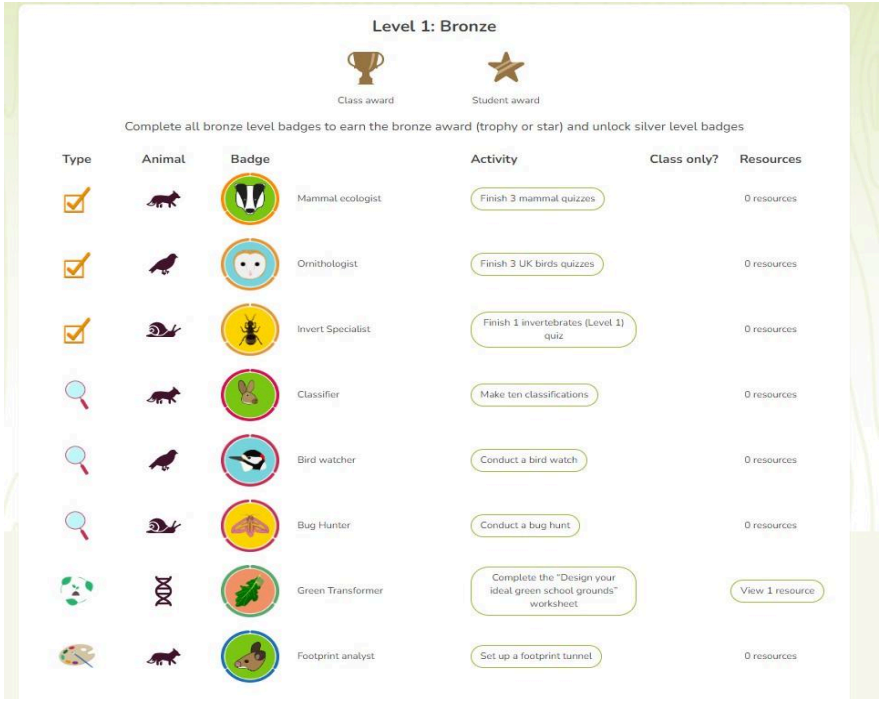
Resource hub

The Resource hub contains a variety of educational resources developed by BES staff, volunteers, and other organisations. These resources can be used to plan school activities as well as complete the relevant badge. Available materials include lesson plans, worksheets, virtual school assemblies, training resources and more. The user can filter by type of resource to explore existing content, or upload their own contributions.



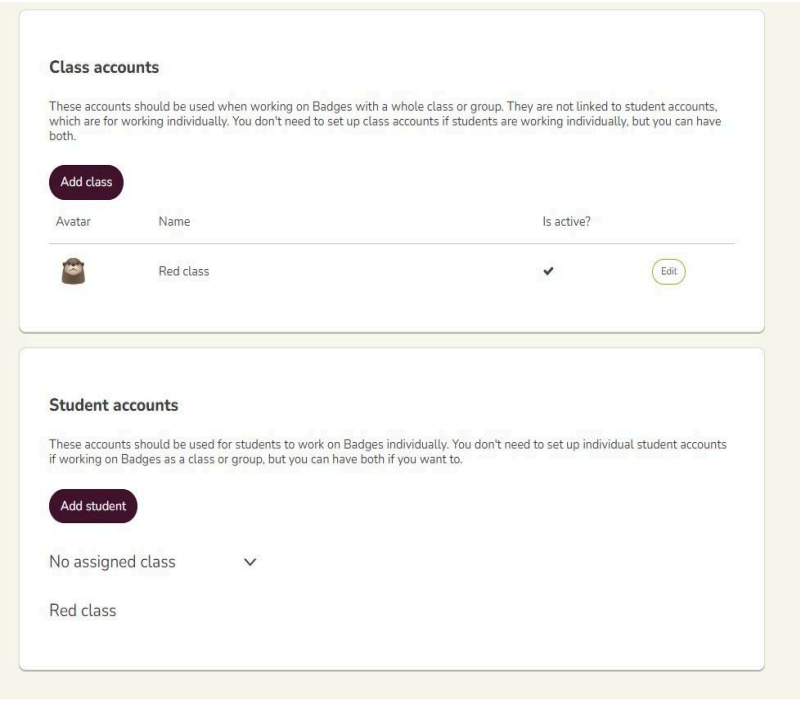
Badge scheme

The badges scheme lays out how you can achieve the different award levels (Bronze, Silver, Gold). Users must complete all badges within each section in order to achieve the relevant award and unlock the next set of badges. The badge scheme also explains which resource relates to which badges, allowing teachers to plan ahead and link activities to the curriculum they are teaching.



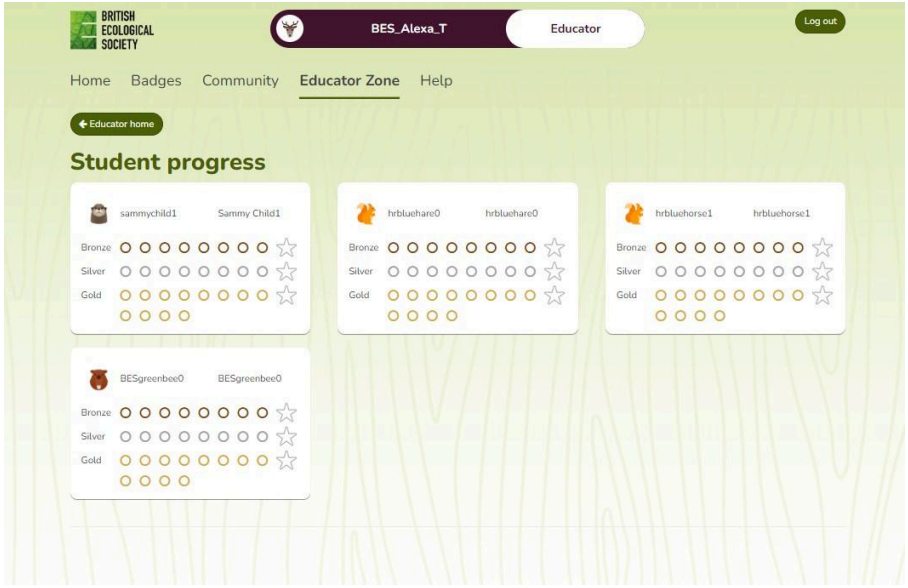
School admin

Located in the Educator zone, the School Admin page allows teachers to set up their school details and tailor the number of accounts they would like. Teachers can use this to set up class accounts for working through activities as a group, as well as individual pupil accounts linked to the school for pupils to work through tasks independently either in or outside of school.



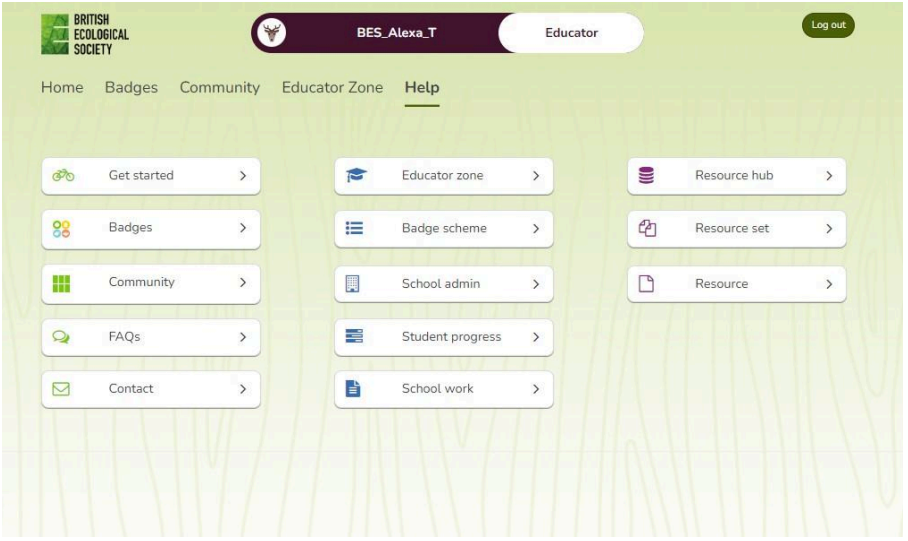
Student progress

The student progress page is located in the Educator Zone. It provides an overview of what activities individual pupil accounts have completed and any awards they have achieved as a result, allowing teachers to track pupil engagement and set tasks for pupils to complete as homework if they wish.



Help

The help page provides a series of articles that users can refer to when using the platform. These include advice on specific sections, how to navigate the website, and top tips for making the most of the platform. On signing up, users are also guided through a step-by-step tutorial on how to use the main components of the platform.



Network of teachers

The BES Strategic plan 2023 - 2025 includes the launch and support of a teacher network for those who teach primary and secondary students. The teacher network developed during the Connecting Schools to Nature project will contribute directly to this. The teacher network will provide an opportunity to share key resources and will give teachers the opportunity to directly influence and input into the education work at the BES.

Regional Champions legacy project

To expand our reach we will be implementing a regional champions legacy project, recruiting 15 schools from across the country to act as 'regional champions' for their area. By expanding our geographical reach of schools we can start to develop contacts and networks of schools in other regions, allowing more schools to benefit from the project's resources. The regional champions schools recruited will receive equipment bundles similar to the equipment provided to schools through this project. This equipment - which includes a camera trap, bird nest boxes, equipment for insect surveys and more - will help schools to start their nature projects. Schools will also receive training in how to use the Encounters platform to help them engage long-term with the project. Schools will be able to interact with other schools via the community page on Encounters.

BES Strategic plan 2023 - 2025

The British Ecological Society has introduced its new strategy for 2023 - 2025, an ambitious plan to rise to the global challenges of climate change and biodiversity loss. The "Connecting Schools to Nature in the North -East" project will be integrated into the newly created strategic plan within the following goals.

Goal 3: Nurture a growing community that is strong, equitable and collaborative

Sub-goal 3.4 Support and recognise teachers and teaching, from childhood to adulthood

The BES aims to develop at least one free-to-access education resource per year. The BES Encounters platform collated teaching resources developed by BES staff, environmental educators, and uploaded by teachers. These resources are being collated into a "teacher's pack" to be distributed widely.

As noted above, a teachers network will be developed to distribute resources further, share best practice and to allow teachers to input into wider education projects. The BES has an active Teaching and Learning SIG with whom we will be collaborating to reach a wider audience and ensure legacy resources are utilised.

Subgoal 3.5 Support ecologists to pursue and achieve their ambitions throughout their whole careers

Careers and training are important elements of the education work at the BES. The Connecting Schools project included careers elements, as well as teacher and environmental educator training. The BES will continue to ensure resources developed as part of the project are incorporated into our continued aims to provide careers advice for schools

The BES also have a long history of providing mentoring opportunities and are soon to launch a new mentoring programme for members. The environmental educators from the Connecting School

project are to be invited to participate in this mentoring programme with continued personal development opportunities, including training and opportunities for networking.

Goal 4: Celebrate the wonder of ecology to inspire action and change

Sub-goal 4.1 Enable people to discover ecology in everyday life (e.g. health, food, and water)

The BES are in the initial planning stages of launching an "ecology week". This will create opportunities to engage with partner organisations and celebrate the wonders of ecology. A key element of this will be the engagement of schools, and we will be incorporating the BES Encounters platform and resources into this initiative.

Subgoal 4.2 Nurture the ecological spark in new and marginalised groups

The BES delivers "Next Generation" bursaries and will continue to seek additional funding for these. The Environmental educators from the Connecting Schools project will be directed towards applying for these bursaries if eligible.

Subgoal 4.4 Build capacity to inspire and educate about ecological science

The BES delivers an Undergraduate Summer School each year which provides an opportunity for undergraduate students who may be facing barriers to their progression into ecology to benefit from a week of training, networking, careers support, and practical ecological content. This is at no cost to the attendees. In 2023 - 2025 we will launch a teachers programme to coincide with the Summer School, utilising the BES Encounters Platform and resources, and delivering teacher training as developed during the project.

The Summer School will also provide an opportunity for Environmental educators to apply to participate if eligible. There are additional opportunities to contribute in other ways, including as a mentor to the students attending. In addition there will be the opportunity to utilise the skills obtained during the project and run engagement sessions.

Subgoal 4.5 Enable and empower the next generation to join and remain within ecology

The BES aims to continue partnership working to ensure ecological content features in general science activities including in events such as the Big Bang Fair. The BES Encounters platform and associated resources will be showcased at various events including the Big Bang Fair. Opportunities to discuss the learnings from the project will be explored, including giving talks at conferences such as the Association for Science Education Annual Conference.