Building Resilience in South West Woodlands

PROJECT EVALUATION REPORT JANUARY 2023

HG-16-04737

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1. Executive summary

Temperate rainforest is a globally rare and internationally important habitat, found in south-west England and other upland and western parts of the UK. It is characterised by a rich diversity of lichen, moss and liverwort (bryophyte) species, and the UK's rainforest is home to many species for which we have an international responsibility to conserve. However, our rainforests are challenged by immediate environmental and management issues which threaten the very existence of these species.

At the same time, people (including those who manage and own these woodlands, local communities, and visitors) are challenged by a lack of opportunity, information, skills, and resources. This means the unique heritage is often undervalued, placing it at greater risk. In November 2018, Plantlife was awarded a National Lottery Heritage Fund (NLHF) grant to undertake a Heritage Grant Scheme project to address these challenges.

The Building Resilience in South West Woodlands project aimed to shine a light on the region's threatened and under-recognised temperate rainforest habitat and its lichens and bryophytes. This partnership project focussed on tackling two connected threats: an under-appreciation of the woodlands' importance and a lack of understanding and specialist knowledge to manage and conserve them effectively.

What the project has achieved

- **Practical conservation activity on the ground has safeguarded vulnerable sites and species for the future** and learning from this has informed and empowered land mangers across the region.

- **Skills needed to identify what were considered to be obscure plants and lichens are present in the region** and these skilled volunteers are revitalising local taxonomic groups – the custodians of these skill sets.

- **Monitoring has been showcased as an essential element of any management scheme** so that impacts can be measured in the short, medium, and long term.

- **Volunteers have played a crucial role in contributing new knowledge and understanding about the condition of rainforest in the region** through the project's Rapid Rainforest Assessment, New Generation Botanist surveys and site monitoring, creating a wealth of new knowledge and data that will inform conservation action.

- **A Rainforest Hub for land managers has been developed**, providing guidance and examples of conservation action on the ground not just for south west England, but the whole of the UK, so that good practice can be disseminated across the habitat.

- **Regular and progressive training of land managers, volunteers, educators** (e.g., teachers, environmental educators, rangers) has ensured that a legacy of skills and knowledge is present in the region and is being utilised. Resilient Rainforest training raised the habitat's profile and inspired others to act.

- **Communities including families and schools have contributed** through volunteer opportunities, events and resources which continue to be used by local stakeholders.

A combination of factors meant the project came at a key moment: a growing recognition of the habitat's importance for threatened species within the conservation sector, an acknowledgement that emergency intervention was needed, an appetite for learning, and enthusiasm for contributing.

It has been successful in building momentum not just in the south west of England but beyond too, by demonstrating how land managers, organisations, and communities (through volunteering) can be empowered to make a positive change for this valuable natural heritage.

By bringing together conservation partners, local experts, communities of local people and visitors, the project has transformed understanding of the region's woodlands and made a significant contribution to conservation, with a long-lasting legacy.

Tarr Steps NNR, Exmoor

Land manager training at East Dartmoor NNR

1.1. In their words

“With the publication and the meetings you have..really progressed the connection between lichens and management. It was a pleasure to join you at Horner which is a great example of long-term co-operation. You have now extended this to many different regions and made huge steps forward to increase knowledge and conservation of lichens.”

Pat Wolseley, lichenologist and British Lichen Society member who taught on the New Generation Botanist programme, talking about Rainforest Management in Action, a Resilient Rainforest training session for landowners and land managers on Exmoor.

Figure 1 Pat Wolseley at Horner Wood

Figure 2 Andy Stickland Plantlife volunteer

"Having suffered from mental health issues when an agricultural lecturer, one of my 4 daughters gave me the link to Plantlife and to you Rachel, knowing how I loved to talk about woodland ecology.

Then in North Devon I used my tablet to do walks around local woodlands. On moving to Plymouth, I did ones of Dartmoor and several of Central Park Woodland.

I loved being able to share my passion and knowledge of basic woodland ecology on the videos (all be they were amateur) they were well received. My mental health was much improved in sharing this way."

Andy Stickland, who created 8 virtual woodland walk videos and went on to further volunteering in-person with young people and children with the National Trust at Cotehele.

Figure 3 MED Theatre group filming at East Dartmoor NNR

"It made me feel the need to respect the woods a bit more, learning about them, and the important things in them."

Young person, part of the MED (Manaton and East Dartmoor) Theatre group

"The amount of knowledge imparted, and interest generated, raising the profile of bryophytes and lichens and their importance within a temperate rainforest. Some excellent learning resources have been produced through the project, including the Rapid Woodland Assessment, ID guides and training resources are really accessible and useful assets that will remain valuable well beyond the project. The learning and resources will mean people will feel inspired and informed to take action to better look after the key species growing in temperate rainforest."

Project partner, commenting in the Heritage Insider evaluation questionnaire on the impact of the project.

Figure 4 Plantlife's Alison Smith delivering land manger training on Dartmoor.

"The project has brought us a whole range of great opportunities to engage with our existing volunteers and a way to attract new audiences too. Seeing our volunteers enthusiastically sharing without prompting their knowledge about mosses and lichens with colleagues when we're out on site undertaking practical conservation tasks, is testament to the great teaching they've been given by the project. Online introductory sessions to ferns, developed during lockdown, proved valuable and popular part of our online engagement programme, helping sustain the enthusiasm of those who volunteer with us."

Jackie Kiberd, Volunteer supporter and partnerships coordinator with Exmoor National Park.

Figure 5 Jackie Kiberd, Exmoor National Park

Figure 6 Sarah Williams, Plantlife

"The Building Resilience project has laid strong foundations for future funding of this work to protect rainforests in England. As a fundraising team we have been inspired by the project results and will use the learning and impact data in bids to potential new funding partners. We hope to raise further funding to continue the excellent work on rainforests in the south west of England, building on the legacy each year and ensuring the impact goes well beyond the lifetime of the NLHF grant."

Sarah Williams, Senior Partnerships Manager Plantlife.

"Plantlife selected temperate rainforest as one of its continuing strategic priorities for this decade, in no small part because of the impact of Building Resilience. Through this project we have been able to tangibly demonstrate the impact of providing training and advice on assessing and managing temperate rainforest and its incredible species diversity. The profile for temperate rainforest has increased so that more than ever forest managers are seeking our evidence and experience."

Nicola Hutchinson, Director of Conservation Plantlife.

Figure 7 Nicola Hutchinson, Plantlife

1.2. In numbers: Improved temperate rainforest management

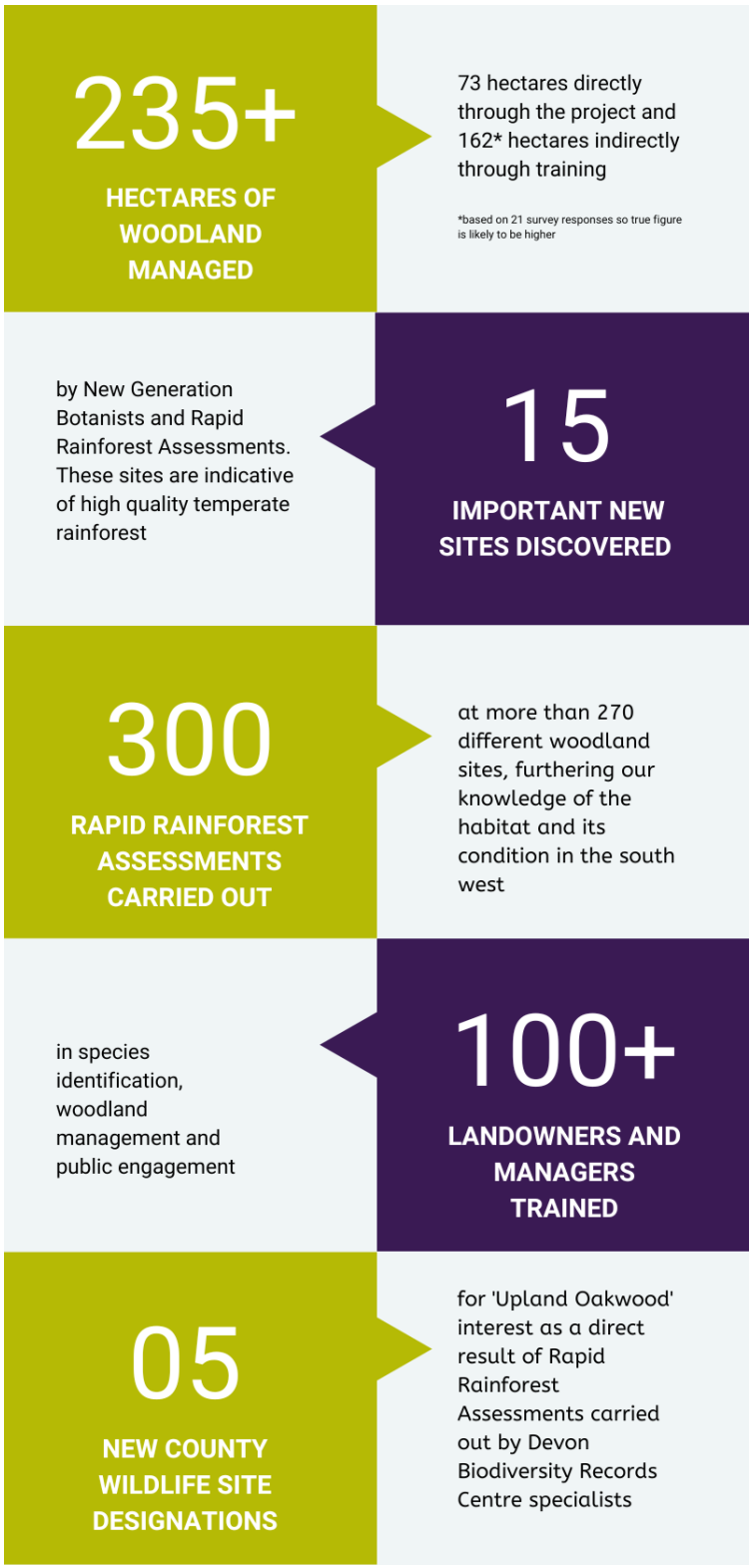


Figure 8 In numbers: Improved temperate rainforest management.

1.3. In numbers: Engaging with people and communities

Figure 9 In numbers: Engaging with people and communities.

2. What the project wanted to achieve

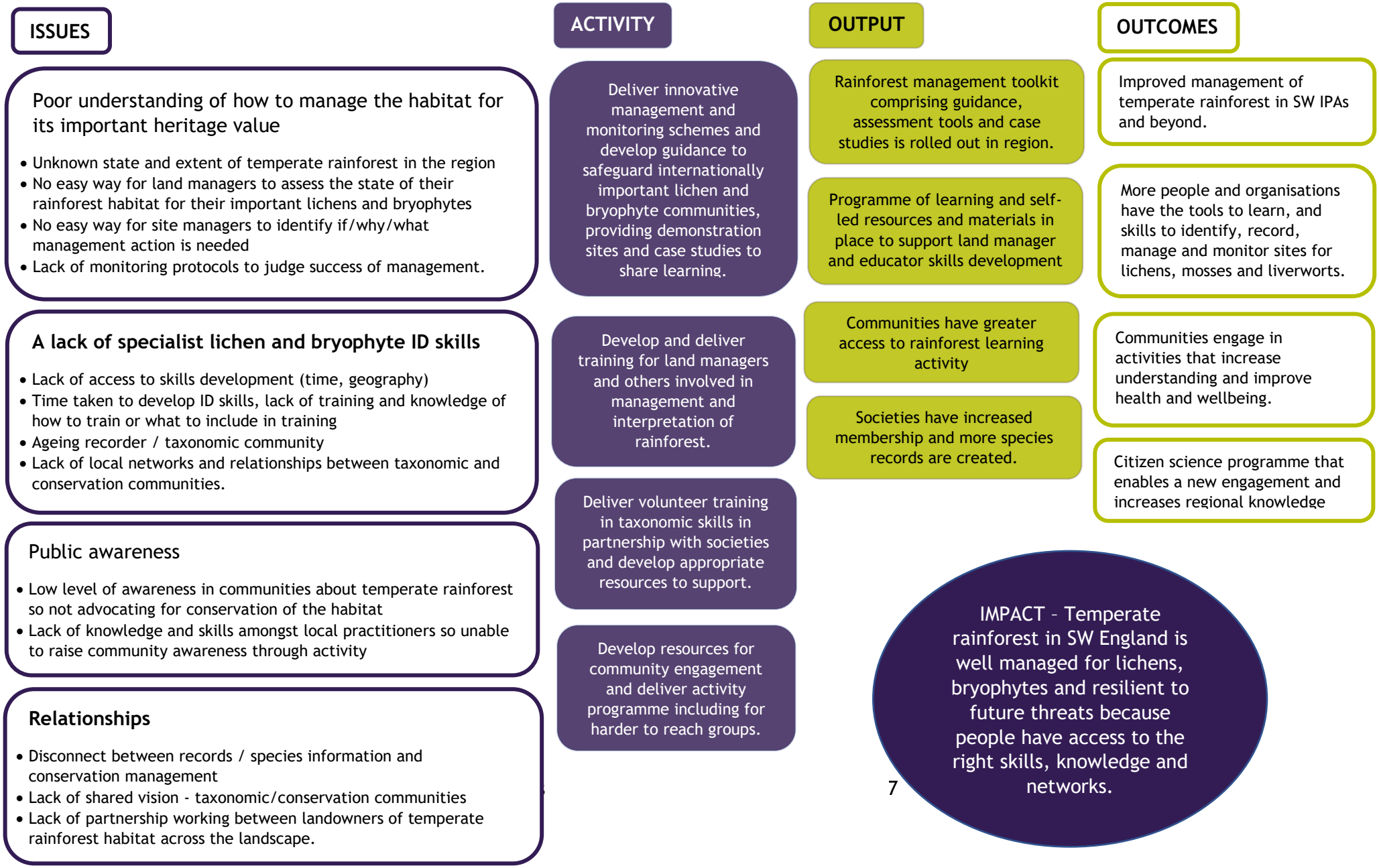
The project's aims are set out in Figure 10 below, along with examples of how we intended to achieve these. Figure 11 outlines the rationale for the project using a Theory of Change model, that demonstrates why the specific activities of the project were selected to address the key issues affecting the heritage.

Improve the management of woodland Important Plant Areas in the south west and have a wider impact on woodland management in the region.	•To be achieved through, for example: - Habitat management at key rainforest sites - Dissemination of a comprehensive toolkit for woodland managers - Development of case studies highlighting key learning
Significantly increase the number of people and organisations with the skills to identify, record and manage woodlands for lichens, mosses and liverworts and increase the number of species records.	•To be achieved through, for example: -Extensive programme of training to support skills and knowledge development amongst woodland managers and volunteers (e.g. New Generation Botanist Schemes).
Engage communities including harder to reach audiences in learning, recreation and volunteering activities that will increase understanding of local natural heritage, encourage behaviours that will be of benefit to it and improve health and wellbeing.	•To be achieved through for example: - Adult, community, family and schools' learning and engagement programmes
Deliver an innovative citizen science programme that enables a new and wider audience to engage with temperate rainforest, improve regional knowledge of them and make a real impact on their management in future.	•To be achieved through for example: - Development and dissemination of the Rapid Rainforest Assessment tool and training - Provision of school citizen science resource and training and bespoke projects for schools in the target area
Leave a legacy because of staff and stakeholder training, the learning gained through project evaluation, a suite of online educational and training materials and monitoring methodologies for use beyond the project lifetime.	• To be achieved through for example: - Development of online learning tools to create lasting learning opportunities - Creation of an online hub for woodland managers and educators involved with temperate rainforest

Figure 10 Project aims

A theory of change model that shows the rationale for the project activity is given in Figure 11 below.

Figure 11 Theory of change model showing rationale for project.



2.1. Project delivery

2.1.1. The partnership

Figure 12 Project partners and staff at start up meeting Nov 2018

The project was delivered by a regional partnership of conservation organisations, Figure 13.

Partner organisations	Role within the project & primary areas of engagement
	The British Lichen Society / The British Bryological Society Provide expertise with lichen and bryophyte training (e.g., planning and delivery of New Generation Botanist courses, subsidised society membership for ongoing mentoring).
National Trust WOODLAND TRUST EXMOOR NATIONAL PARK NATURAL ENGLAND	**Exmoor National Park / The National Trust / Natural England / The Woodland Trust** Capital partners carrying out woodland management and monitoring and supporting best practice dissemination through training and case studies. Volunteer engagement and public events.

	Dartmoor National Park / Cornwall AONB / Quantock Hills AONB / Tamar Valley AONB / South West Lakes Trust Non-capital partners providing public engagement opportunities and enabling project reach into local communities through networks and volunteers.
	Devon Biodiversity Records Centre Instrumental in the development of mapping capabilities and trialling the Rapid Woodland Assessment in the development phase of the project.

Figure 13 Partnership organisations and their involvement

2.1.2. The delivery team

The project was due for completion in April 2022 but was extended to Jan 2023 to make up for time lost during the COVID-19 pandemic. Staff furlough and changes in staffing levels created opportunity to recoup some lost time and enabled project staff and partners to make full use of the funding available. To deliver the project, Plantlife appointed two members of staff; a part-time Project manager (0.8) and a full-time Community Scientist who were supported by an internal (Plantlife) working group and external advisory group comprising of representatives from the partnership. Figure 14 below features key delivery staff from the internal working group.

Rachel Jones, Project Manager

Dr Alison Smith, Lead Community Scientist

Kate Hind, Lead Community Scientist (maternity cover/job share)

Dave Lamacraft, Lichen and Bryophyte Specialist

Marygrace Rowe, GIS and Data Officer

Beth Newman, GIS and Data Manager

Figure 14 Key delivery staff within Plantlife

2.1.3. The programmes – a summary

Project activity was grouped into 4 interlinked programmes (see Figure 15 below), designed to provide an impetus for change, reach new audiences and invigorate sustained interest in, and management of, this natural heritage. The prominent role of citizen science in this project placed people at the heart of conservation work, involving everyone from land managers to school children in contributing to our knowledge and understanding of the region's temperate rainforest. Extensive consultation and trialling of activities with a wide range of audiences during the development phase enabled the partnership to define and refine the project offer, ensuring it met the needs of the region's heritage, people, and communities. Figure 16 demonstrates how the programmes were intended to lead to short-term impacts and longer-term legacies.

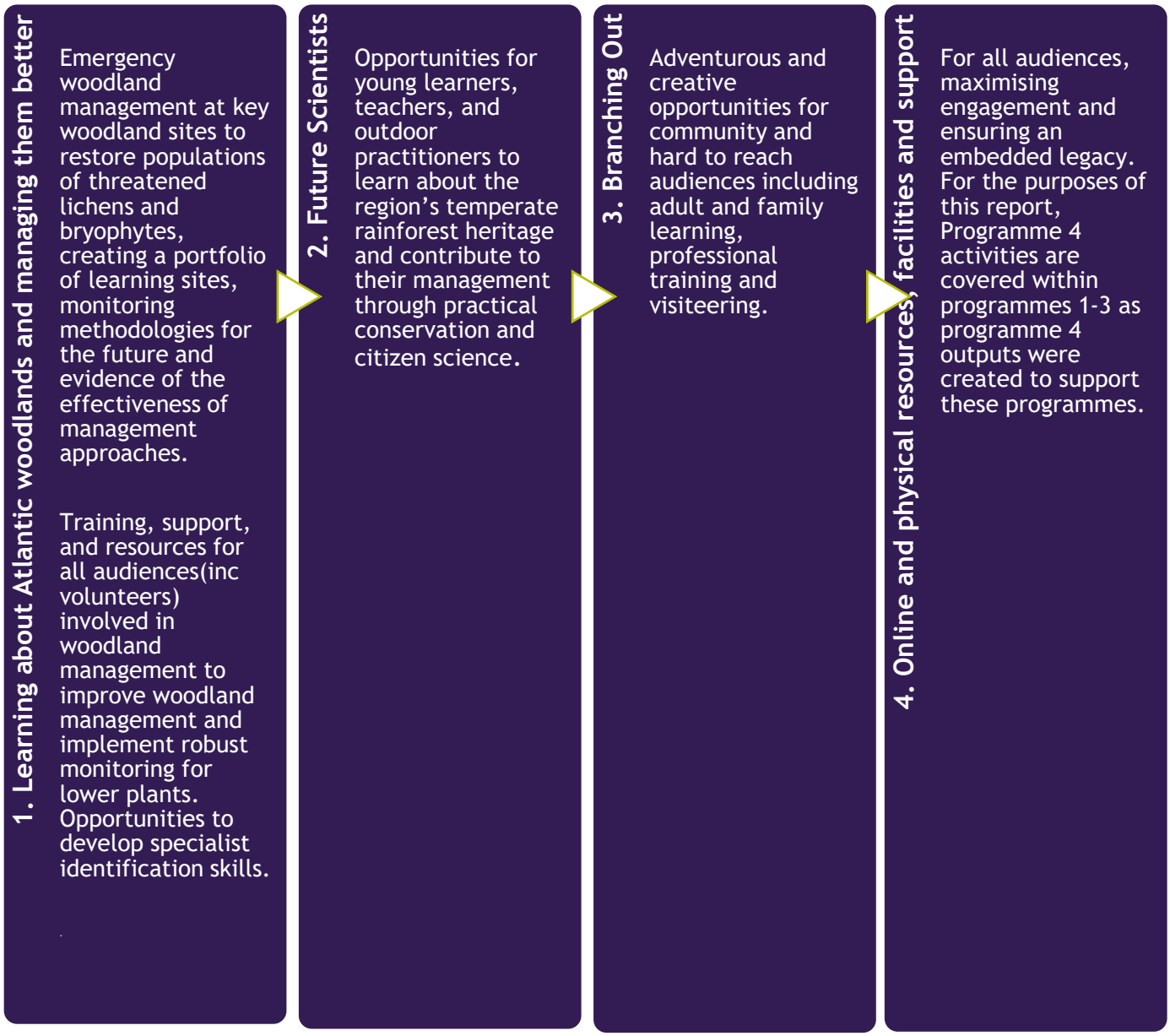


Figure 15 The four project programmes - activities

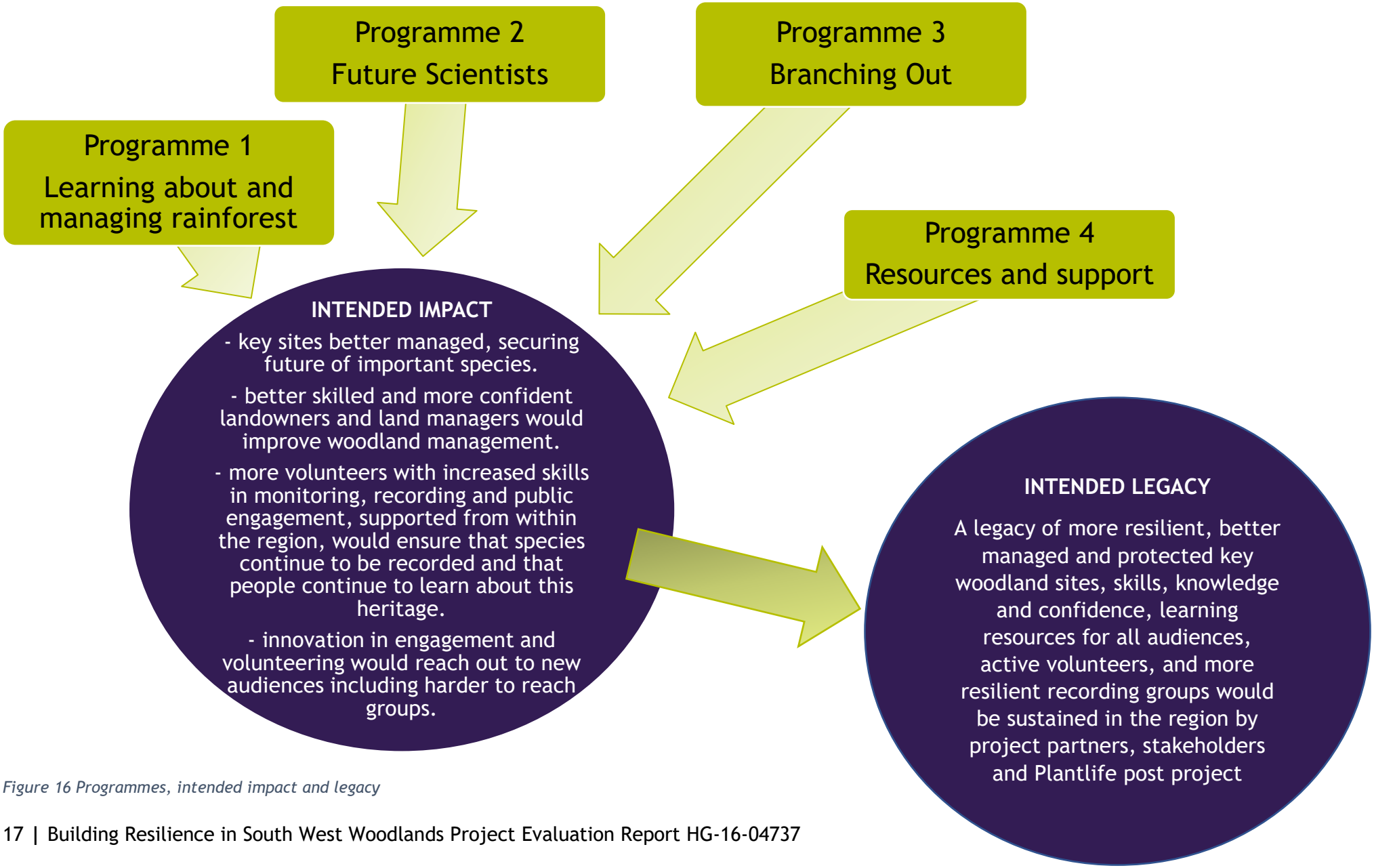


Figure 16 Programmes, intended impact and legacy

3. How this evaluation was carried out

The evaluation sets out to examine the difference the project has made to:

- The temperate rainforest heritage and the special plant and lichen species it supports.
- People and communities working or living in or near to temperate rainforest.
- Plantlife and organisations that have been involved in the project.

An evaluation plan was written in the project development phase. We have ensured that our approach to evaluation is participative and informative through:

- **Formative evaluation** – Seeking feedback from stakeholders and beneficiaries throughout the project has enabled us to improve and refine our offer. It has also enabled us to capitalise on new and emerging opportunities.
- **Summative evaluation -** Data on project activity, participation and impact has been gathered via online surveys, interviews, observation including immediate participant feedback and behaviour, reflections of staff and online engagement.

This report is supported by appendices which contain more detailed information on the delivery of the project's activities and include feedback from participants, lessons learned and recommendations. Helping to tell the story of the project, they include programme reports, resources and case studies which share the perspective of the people involved with conserving and celebrating temperate rainforest and its lichens and bryophytes.

This report has been compiled by Plantlife staff Rachel Jones, Alison Smith, Kate Hind, Beth Newman and Felicity Harris, and Heritage Outsider who have evaluated the partnerships element.

Figure 17 Temperate rainforest at Watersmeet, Exmoor

4. Project impact – Legacy in action

4.1. Introduction

Building Resilience in South West Woodlands has had impact both internally within Plantlife and externally, within the partnership and beyond. There are many legacies from this project at a range of scales. Some of these impacts and their ensuing legacies are explored in this section of the evaluation and in the one on organisational learning which follows including:

- Temperate rainforest is left in better condition for rare and important lichens, with a legacy of monitoring programmes and skills in place to ensure lasting protection.
- Temperate rainforest is better understood across the region, with a legacy of new data, data exploration and monitoring tools, and skill sets to inform future management.
- A legacy of skills, knowledge, confidence amongst landowners, land managers, volunteers who are better equipped to address the issues the habitat faces including planning and carrying out management and monitoring.
- A legacy of skills, knowledge, confidence amongst educators and outdoor leaders leading to positive outcomes for communities.
- A legacy of language, digital resources, and digital know-how.

Some broader reflections are summarised in Figure 18 below.

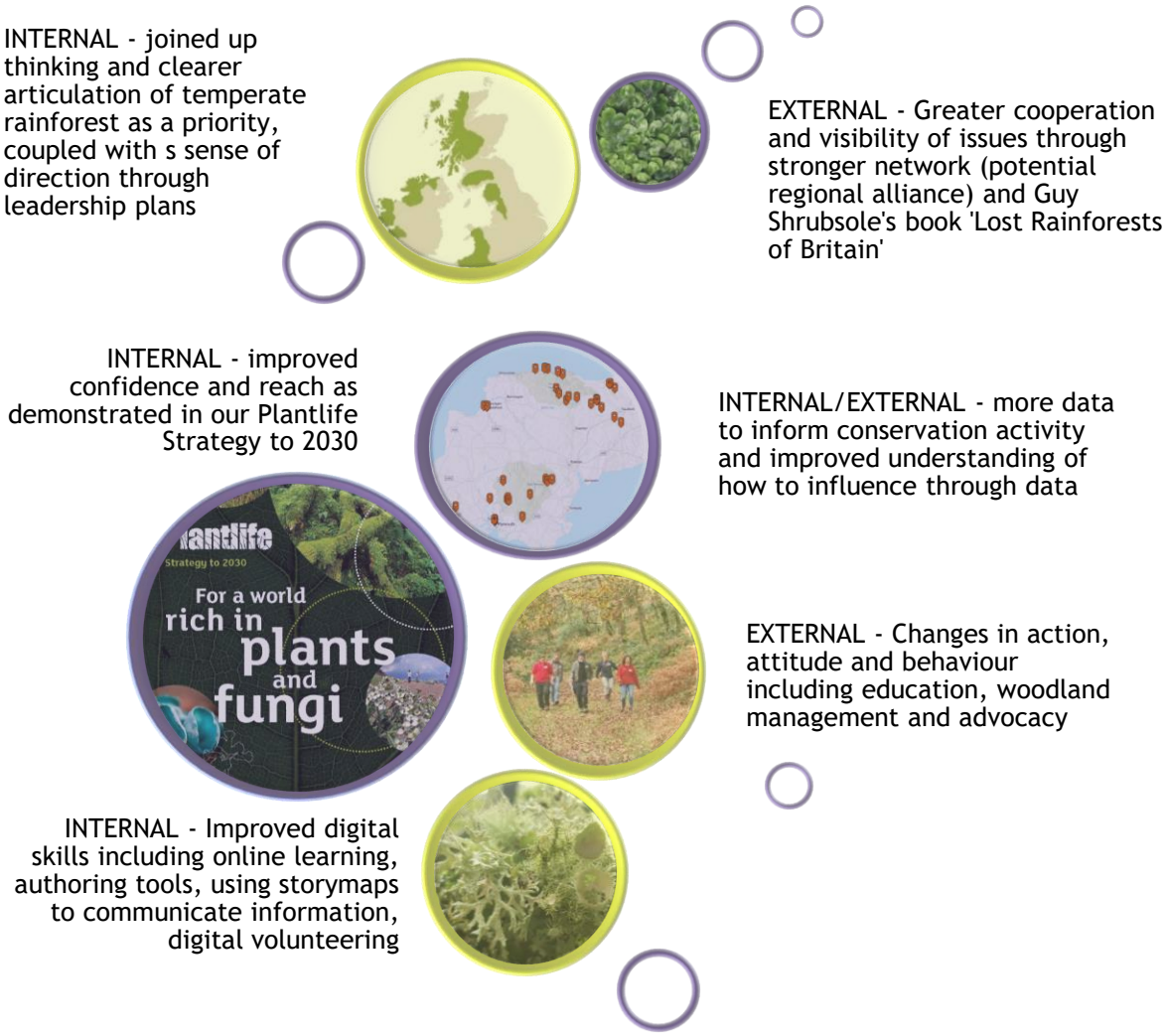


Figure 18 Summary of project legacy

4.2 Temperate rainforest is in better condition and information, networks and skills in place will ensure lasting protection

Figure 19 Dave Lamacraft, Plantlife

"This project has been a fantastic opportunity to undertake habitat management to secure the futures of some rare species but also to assess the impacts of that management though the work of the citizen scientists, volunteers and site managers so we can really learn about how best to manage this globally important habitat".

Dave Lamacraft, Lichen and bryophyte specialist (England and Wales)

4.2.1 Temperate rainforest lichen communities are more resilient

The project has directly improved conditions for rare and important rainforest lichens at 5 key sites across the region, leaving these woodlands and their lichens more resilient to future change. In total, 73 hectares of temperate rainforest has directly benefited from management through the project, with light levels and other conditions being improved for rare and threatened lichen communities—particularly the regionally threatened *Lobarion* community and globally rare ancient dry-bark community.

- **On Dartmoor, in the East Dartmoor Woods and Heaths National Nature Reserve**, well-lit conditions have been restored to over 4.7km of ancient wood-banks by thinning holly, removing conifer and dense tree regeneration. Early results show that this is already benefiting lichens, with an increase in lichen abundance on south and west-facing sides of trunks and a small number of new colonisations of light-loving 'bushy' lichen species. Learning from this work is being shared with other rainforest managers across the UK to influence wider management (see Appendix 1 for full results and our case study on 'Restoring open conditions along traditional woodland boundary features' here).

Figure 20 Horse logging at East Dartmoor NNR ©Dave Rickwood

- **At Horner Wood National Nature Reserve—one of the most important sites in the England for lichens**—over 23 hectares of temperate rainforest have been improved by reducing shading through holly thinning and control of tree regeneration and ivy. There has been a significant reduction in shading on veteran oaks, resulting in an increase in size in the dry bark lichen niche on 44% of trees and some very early signs of ancient dry bark species increasing and colonising new trees (see Appendix 1 for full results and our case study on 'Thinning holly for the benefit of veteran oaks and their lichens' here). Additionally, work to mitigate the impacts of ash dieback on lichens at Horner has provided a blueprint that is being applied across other rainforest sites (see our case study on 'The rare lichens of ash and mitigating the impact of ash dieback' here).

Figure 21 Woodland slopes cleared of holly at Horner Wood

Figure 22 Pollarded oak trees in Hawkcombe Wood

- **At Hawkcombe Wood National Nature Reserve,** 25 hectares of woodland have had light-levels improved through halo-thinning around important trees and control of beech regeneration, dense holly and ivy. The resource of pollards, which are important for ancient dry-bark community lichens, have been protected and expanded by improving conditions for veteran pollards, creating 15 new pollards and re-pollarding 31 recent pollards. Light levels (as indicated by canopy openness values) around the Hawkcombe pollards have increased by over 6% and are now comparable to nearby Doctor's Wood—one of the best sites in the world for these lichens (see Appendix 1 for full results).

- **In the Barle Valley SSSI**, light levels have been increased through holly, ivy and beech management across 13.8 hectares of temperate rainforest. 3 years after management, 22 new occurrences of indicator species have been recorded across the two management areas at Tarr Steps and Brewer's Castle. Species that already appear to be benefiting from the management include *Sticta fuliginosa s. lat.* and *Sticta sylvatica* – both of which the UK has an international responsibility to conserve (see Appendix 1 for a report of the results).

Figure 23 The River Barle at Tarr Steps NNR with ash and hazel-rich flush where thinning was carried out to increase light levels.

- *Lobarion* lichens, threatened by the spread of ash dieback, are now more resilient on Exmoor following two successful translocation projects at Horner Wood NNR and Tarr Steps NNR. At Tarr Steps, 25 specimens of the Tree lungwort lichen, *Lobaria pulmonaria,* 4 specimens of the Kidney lichen, *Nephroma laevigatum,* and 1 specimen of the Floury dog lichen, *Peltigera collina,* have been successfully transplanted from a compromised ash limb to a mix of hazel, ash and sycamore trees, and show signs of viability 3 years on. At Horner, 7 specimens of Tree lungwort from a fallen ash tree have been successfully transplanted onto hazel. This work has helped provide a model for future translocations and their subsequent monitoring on Exmoor and beyond (see Appendix 1 and our case study on 'Translocating *Lobarion* lichens' here).

Figure 24 Lobaria pulmonaria lichen transplant, attached with mesh at Tarr Steps NNR

4.2.2 Monitoring programmes, volunteer networks and new skills facilitate lasting protection

Land managers can continue monitoring the impacts of management work, leading to informed decisions about ongoing management and lasting protection. Figure 25 summarises the key project activities, resources and outputs that have supported this legacy.

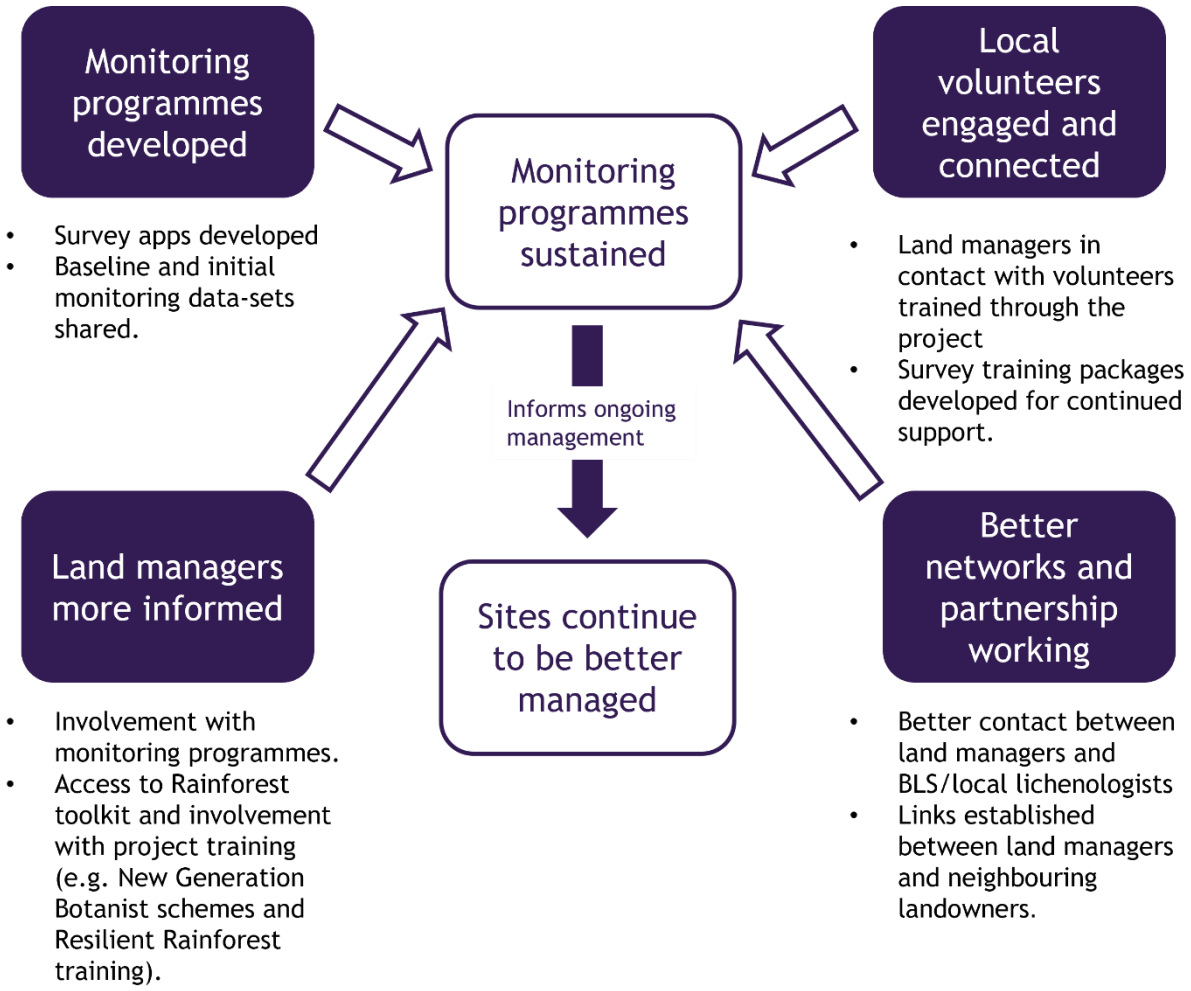


Figure 25 Summary of project activities, resources and outputs supporting a strong legacy of continued monitoring and more informed management.

Using a citizen science approach – volunteer involvement to ensure monitoring sustained beyond the project lifetime

As the site monitoring needs to continue beyond the lifetime of the project funding, it was important to ensure this would be feasible in terms of partner resources. In addition, the project aimed to engage local communities with the local temperate rainforest heritage. Therefore, the wood-bank survey (East Dartmoor) and *Lobarion* lichen survey (Exmoor) were designed so that they could be undertaken by volunteers whilst still enabling accurate and useful data to be gathered. Extensive trialling was undertaken with local volunteers prior to surveys beginning, to ensure an iterative process that led to the development of user-friendly survey methodologies.

A pool of experienced and motivated volunteers:

More than 100 volunteers have been involved in site-based monitoring to help understand the impacts of practical conservation work. This has equated to 274 volunteer days (including training time). Where monitoring has taken place over successive years of the project (East Dartmoor), many volunteers helped with multiple surveys over consecutive years, demonstrating a commitment to the project and a growing skillset.

Volunteers have reported enriching experiences, enjoying the opportunity to contribute to real conservation, learn new skills and meet new people (Figure 26). There is now a resource of trained volunteers to help with future surveys and training packages in place to help train new volunteers and refresh people who have previously been involved.

"I really enjoyed working with Plantlife during my time at Yarner [East Dartmoor]. *Everyone was so knowledgeable and friendly and I always learnt lots and enjoyed it. It was a great experience to be able to get outside and do practical survey work in such a fantastic area that had lots of plant diversity.*"

Katherine Hewkin, graduate trainee with 'Moor than Meets the Eye' project.

"Having got interested in lichens through an art project, I found it very interesting to be involved in a science project and was glad of a chance to contribute to lichen conservation. And it was fun being out in the woods with such a nice group of people, of varied ages and expertise."

Clare Benson, volunteer from the local community (Dartmoor).

"It really makes it feel a lot more worthwhile getting to see the data and to be included in viewing the results, I've found it very interesting doing the surveying even though I'm a novice…Thank you for the opportunity, it's now confirmed for me that I am going to start a degree hopefully next year in environmental sciences."

Leighton Jones, volunteer from the local community (Exmoor).

Figure 26 Quotes from volunteers involved in site monitoring work.

Infrastructure in place to support continued monitoring

Monitoring protocols have been developed for each of the 5 sites where practical management was carried out. Land manager partners have received a handover package for the monitoring work, which includes all existing data, survey resources, clear instructions for repeat monitoring, volunteer training resources and volunteer contact information (where this was not already held by the land managers and where volunteers have provided consent). An example volunteer training video can be viewed here. This will provide a refresher for existing volunteers between survey seasons, and the opportunity to continue to engage new volunteers as needed over the course of the 10-year post-project monitoring phase.

To facilitate rapid data collection and collation, the ArcGIS app Survey123 was used to create in-app data entry forms. An example can be viewed here. In January 2022, Plantlife held a data meeting with project partners to discuss the project legacy around data outputs. Land manager partners were consulted on whether they would like to take ownership of the Survey123 forms or have Plantlife retain ownership and periodically request data from Plantlife after each round of monitoring. In the case of East Dartmoor NNR, ownership of the Survey123 form is being handed over to the Woodland Trust so they can manage this themselves. For other sites, Plantlife will retain ownership and send data as requested.

Closer connections with local lichenologists

As a result of the volunteer monitoring programme local volunteers, local lichen experts from the British Lichen Society (BLS) and Exmoor National Park Authority (ENPA) have developed closer working relationships and are committed to supporting continued monitoring. Pat Wolseley, a lichenologist local to Exmoor who was involved in volunteer training commented that the project has *"really progressed the connection between lichens and management. It was a pleasure to join you at Horner which is a great example of long-term co-operation"*.

4.2.3 Understanding from management and monitoring is benefiting temperate rainforest across the south-west and UK

Towards the end of the project's delivery phase in November and December 2021, three 'Managing the Rainforest in Action' demonstration events were held at East Dartmoor NNR, Horner Wood NNR and Hawkcombe Wood NNR. They were attended by land managers from conservation organisations, private woodland owners, consultants and advisors working in south west England's temperate rainforest.

A series of 5 case studies have been written and are available on the Plantlife Rainforest Hub:

1) 'The rare lichens of ash and mitigating the impacts of ash dieback' (Horner Wood)

2) 'Thinning holly for the benefit of veteran oaks and their lichens' (Horner Wood)

3) 'Translocating lichens to mitigate losses from ash dieback' (includes the trials at Horner Wood and Tarr Steps NNRs)

4) 'Restoring open conditions along traditional woodland boundary features' (East Dartmoor NNR)

5) 'Managing old pollards to benefit a rare and specialist lichen community' (Hawkcombe Wood NNR).

These case studies include interactive elements such as video interviews with Plantlife and partner organisation staff involved in the work and help land managers apply the scenarios encountered at the demonstration sites to their own woodlands. They are being publicised to rainforest land managers across the UK through Plantlife's new rainforest management toolkit. Colleagues from Wales and Scotland have contributed to this resource by providing case studies of activities in other UK countries which strengthens the Rainforest Hub as a UK-wide resource.

The ash dieback work at Horner has provided a blueprint for how the National Trust are managing ash on their sites and mitigating impacts on lichens more widely. For example, at Lydford Gorge NNR (which was newly discovered as an internationally important site for its lichens through this project), Plantlife's lichen specialist met with local rangers and the National Trust's Head of Nature Conservation and Restoration Ecology to put a similar mitigation plan in place, halting the felling of ash trees with important lichen populations.

Landscape-scale management

The lichen survey work attracted a broad range of volunteers from the local community on Exmoor, including two landowners of important stretches of temperate rainforest—one with woodland within the Barle Valley SSSI and Exmoor and Quantock Oakwoods SAC, and one with woodland bordering the North Exmoor and Watersmeet SSSIs. Having been involved in the lichen monitoring, both attended demonstration events and have been using their new knowledge and connections with local lichenologists to inform the management of their own woodland (Figure 27).

"As a woodland owner I really welcomed the opportunity to take part in the training with Plantlife specialists. Their support and networking with other volunteers and managers has been invaluable and will inform the thinking about the future management of these ancient landscapes."

Carol Carey, private woodland owner within the Barle Valley SSSI.

"I now know what is good habitat for lichens and have a much better idea of how to look after it. I spotted a veteran tree only a week or two ago and have adopted it as part of my stewardship agreement for my woods."

Private woodland owner, North Exmoor.

Figure 27 Quotes from private landowners involved in site monitoring work and demonstration events.

Learning and future recommendations

See section 5.2 on organisational learning about woodland management and monitoring for learning and future recommendations.

4.3 A legacy of information to support practical conservation at the regional scale

4.3.1 A better understanding of where rainforest occurs and its condition

Initial mapping work

From the start it was recognised that there was no one spatial (mapped) resource available to indicate where temperate rainforest habitat is located in south west England. Multiple sources of information on woodland areas were available in a disparate way but these mapped layers had never been collated and assessed to allow a simple overview of the spatial distribution of this habitat type. As a large aspect of the project involved mobilising citizen scientists to assess the condition of temperate rainforest using the Rapid Rainforest Assessment (RRA), and to promote the importance of this underappreciated habitat with landowners and managers, it was viewed as essential to create a GIS layer which enabled interested parties to identify likely rainforest sites and hotspots for rainforest lichens and bryophytes.

At the beginning of the project, **a woodland GIS layer** was collated by Devon Biodiversity Records Centre (DBRC) using information from SSSI (Site of Special Scientific Interest), UK BAP (Biodiversity Action Plan) Habitats, National Forest Inventory, Ancient Forest Inventory, and Wildlife Sites spatial downloads. A dataset of lichen and bryophyte 'indicator species' (species known to occur in temperate rainforest) records was then mapped against this newly collated woodland layer, and where there was direct overlap, the woodlands were flagged as being representative of temperate rainforest.

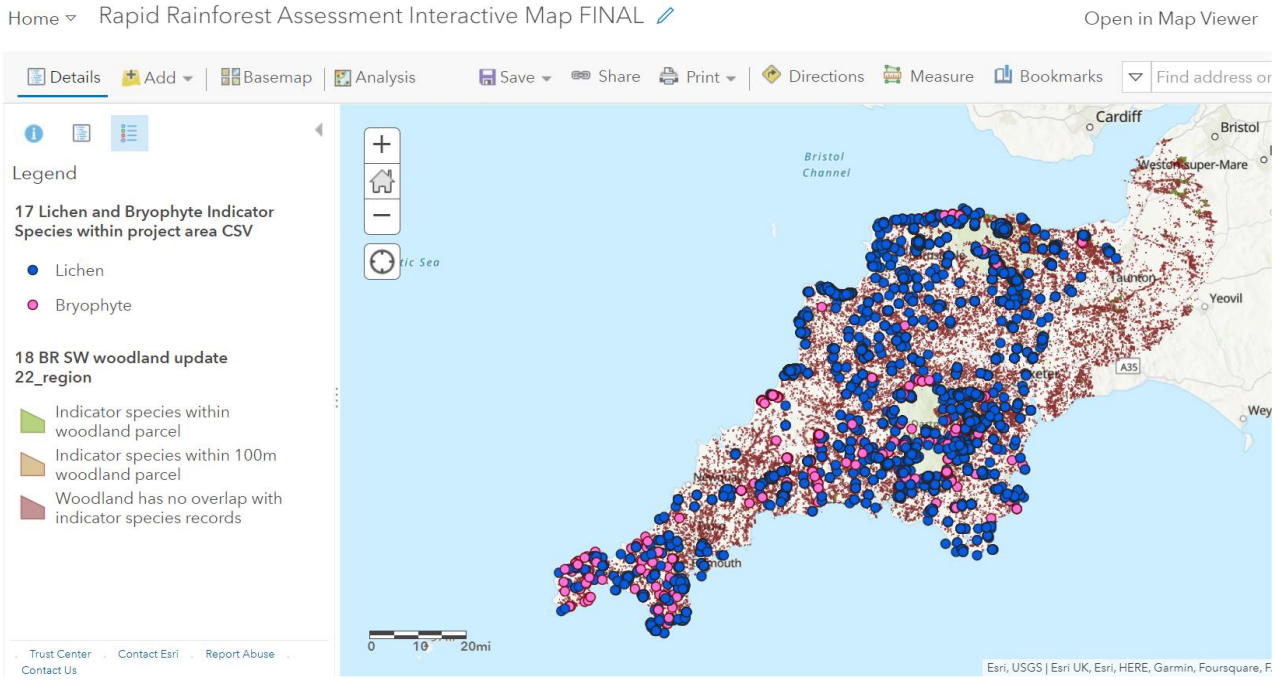


Figure 28 Map showing collated woodland layer and indicator species distribution.

This analysis, when assessed with climate information on humidity and rainfall, created a compelling picture of likely temperate rainforest sites for further investigation. It must be noted that whilst species mapping is considered the most important aspect of identifying suitable habitat polygons, absence of records does not automatically mean that the woodland is not of

interest, rather that it may not have been surveyed to date. Therefore, collating a species dataset of known information is also a way of raising the profile of under-recorded sites and focusing the partnership's and communities' attention on priority areas which are likely to be the right habitat but have no information currently available on them.

Rapid Rainforest Assessment and New Generation Botanist surveys

The Rapid Rainforest Assessment—previously called the Rapid Woodland Assessment—was launched to help us better understand the condition of woodland across the south west and its potential to support rainforest lichens and bryophytes. The survey was designed as a citizen science project, to cover a large area and help gather important information that could not be gathered by professionals alone. Over 200 volunteers, woodland owners and land managers were trained to carry out the survey, and while surveyors could choose any woodland within the project area, they were encouraged where possible to survey sites flagged through the mapping work. In total over 300 surveys were completed of 281 different woodlands and the results were submitted to Plantlife between 2018 and 2021.

In addition, the project's New Generation Botanist (NGB) trainees, who had been trained in more specialist lichen and bryophyte ID skills, were enlisted to help survey sites where RRAs had been carried out and signalled likely high potential for rainforest species. They surveyed 25 sites, identifying 8 with indicator species records that had previously had none. In total, combining the RRA dataset and NGB surveys, 15 new sites were discovered with indicator records of conservation interest, and many new records were added to sites with existing indicator species.

Better protection for newly discovered sites

Furthermore, as a result of the mapping work, Devon Biodiversity Records Centre specialists targeted a number of sites for Rapid Rainforest Assessment, and as a direct result of these, 5 new sites were designated as County Wildlife Sites due to having 'Upland Oakwood' interest. RRA observations have also fed into DBRC's Ancient Woodland Inventory revision project, and as a result several new sites are proposed for designation as ancient woodland, providing a further layer of protection for them.

Updated mapping with project data and new information

At the end of the project delivery phase, the GIS map was updated to include:

- All new species records generated by the project's Rapid Rainforest Assessments and New Generation Botanist surveys.
- All additional data from the 281 RRAs, including information on tree species composition and abundance, woodland structure (e.g., age of trees, light levels), habitat features (e.g., veteran trees, dead wood, rocks etc.) and management issues.
- All new records for indicator lichen and bryophyte species obtained by BLS, BBS and NBN during the project delivery phase.

The GIS layers have been shared with project partners, along with the underlying data sets (with personal data redacted). These layers have also been used to create a Rapid Rainforest Assessment Interactive map https://arcg.is/88iL5 (see screenshot Figure 28) which allows interested parties to view spatial layers and the underlying attribute information without the need to use specialist GIS software. This ensures data is fully accessible to all audiences and

allows land managers to interrogate information spatially using pre-configured queries which can focus attention on component features within the spatial datasets.

For partners who are unable to access ArcGIS software, or want to use the woodland data for outward-facing purposes (landowner engagement, advocacy etc), we created a Rapid Rainforest Assessment Storymap (see screenshots, Figure 29) which explains the story of the survey, what data was collected, and what we have learned from it. It also enables people to hone in on particular locations to find out about rainforest sites across the project area.

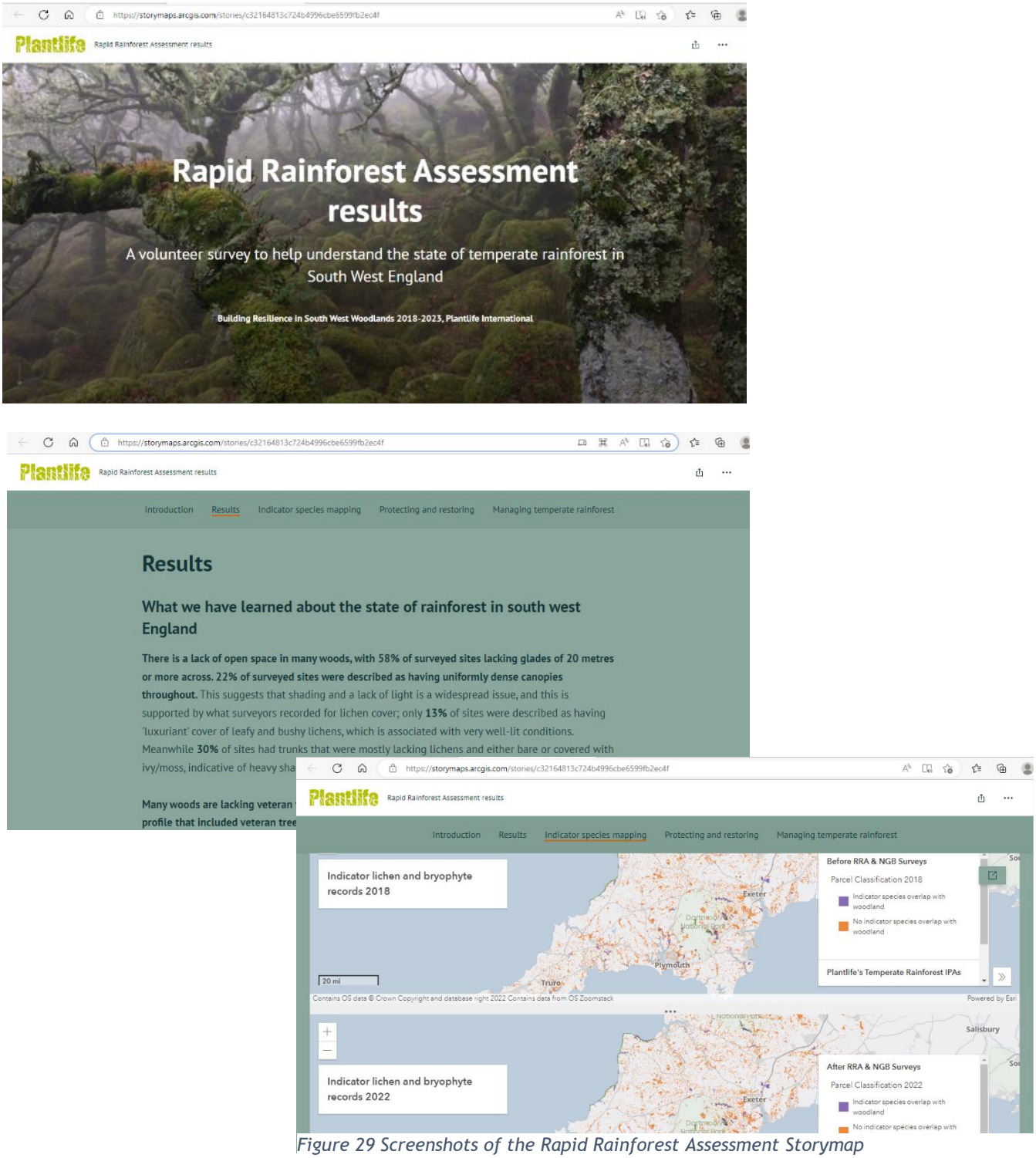


Figure 29 Screenshots of the Rapid Rainforest Assessment Storymap

4.3.2 A range of mapping and data tools enabling different audiences to utilise project data to inform future conservation work

The project data has contributed new knowledge, improved our ability to identify areas of potential interest for lichens and bryophytes, and will support partners to make informed conservation decisions. During the project we met with partners to describe the available data and potential outputs, which informed the outputs that were generated. At the end of the project the suite of data (shown in Figure 30 below) was handed over to partners along with an opportunity to be walked through the resources by Plantlife's Data and GIS Manager. While it is too early to say how this will be used by project partners, partners have indicated how they anticipate the data will be of use to them (see below).

Output	**GIS map of south-west woodland and temperate rainforest**	**Interactive web map**	**Storymap of the Rapid Rainforest Assessment**
Purpose	To help identify areas of temperate rainforest in south-west England.	To allow partners to explore the GIS map dataset without requiring GIS expertise or software. Partners can easily launch queries to investigate aspects of interest (e.g., identifying habitat features or management issues present in the surveyed woodlands).	To provide a summary of the Rapid Rainforest Assessment project, including the rationale behind the work, what the results tell us about temperate rainforest in south west England, and information on how this data is being used to inform management.
What partners were given	GIS layer of the region's woodland including data from the National Forest Inventory and Ancient Woodland Inventory.	A link to the interactive map, which can be accessed here: https://arcg.is/88iL5	A link to the Storymap which can be accessed here.
	Records of lichen and bryophyte species that are indicators of temperate rainforest – This includes unique species records.	The map includes the same data as provided in the GIS map (south west woodland layer, indicator species records and RRA results).	
	Rapid Rainforest Assessment results layer including more detailed information on woodland habitat condition, habitat features and management issues for all 281 surveyed sites	A crib-sheet explaining how to use the map and launch queries to explore the dataset.	

Anticipated applications	Use by partner organisation staff with technical GIS expertise, to map priority areas for conservation activity (e.g., practical work, landowner engagement, survey work), to help inform direct action and future project development and funding bids.	Use by partner organisation staff without technical GIS expertise, to inform conservation work on the ground (e.g., practical work, landowner engagement and advice, survey work).	To enable Plantlife and partner organisations to communicate data to a wider audience including volunteers who were involved in the RRA, general public, policy makers and students. To aid communication around the importance of the habitat. Some partner organisations have expressed interest in providing a link to the Storymap on their own websites.
Specific examples of applications suggested by partners in a survey following a partner data meeting.	• "Initially - will be good additional layer for the Nature Recovery Plan being created by the AONB, which will feed into the Local Nature Recovery Strategies. Longer term to provide evidence to on the ground staff to inform advice to landowners on woodland management options". • "We would like to add this data to our Corporate "Geostore" to allow all GIS users within the Council access to this comprehensive source of information". • "It will add to our existing species and habitat baseline and could potentially add to relevant analysis on nature recovery decisions or environmental management options". • Highlight specific sites of priority to inform management plans to better conserve areas. (Esp. Traffic light map) - enables opportunities for connectivity with adjacent areas and joined approaches for management". • "To find out more about tree species and their age structure and the bryophyte and lichen species/assemblages on our managed land". • "Give us a better understanding of the woodland around us, help to encourage and discourage woodland planting".		• "To support advocacy and communication around temperate rainforest…we'd like to put a link to this on our website." • "Established volunteer groups would be excited to learn our management is underpinned by Plantlife's project. Potential to engage general visitors to sites both virtually and in situ (Storymaps online, interpretation, guided walks etc on site)."

Figure 30 Data outputs and their purpose

4.3.3 Redefining Important Plant Areas

An additional aspect of the project was to build on the existing work carried out using Plantlife's Important Plant Areas (IPAs) model. Important Plant Areas are sites that have been identified by Plantlife as areas that are of international importance for plants, including lichens and bryophytes. The IPAs that have been identified in the project region are primarily for lichen features. Plantlife has developed a Storymap where the IPA programme can be explored. The project enabled an assessment of rainforest IPAs using up-to-date species analysis which added valuable additional information to Plantlife's knowledge base and will help to refine boundaries on the ground. It also allowed focus to be placed on surveying woodland parcels that surrounded the IPAs which is important when considering when considering how to make IPAs more robust through increased habitat connectivity.

Information from these surveys mean that Plantlife now:

- Has a better understanding of the health of IPA 'buffer zones' and can assess whether these can be managed in a way that supports the core areas, ultimately making the IPAs more robust though increased size and therefore able to support the lower plant features which the IPAs have been identified for.
- Has a deeper understanding of bryophytes in temperate rainforest and so Plantlife is working towards defining rainforest IPAs not just for their lichen, but also their bryophyte interest.
- Has a methodology that is employed to prioritise conservation action, for example, deciding on areas to focus activity in the Lake District through the NLHF funded LOST project (Looking Out for Small Things) and has the potential to be used again in future rainforest projects.

Learning and future recommendations

What worked well	Learning about and making use of new technology to communicate data. For example throughout the project we trialled the use of the GIS Storymaps tool which is now used in a number of other areas of Plantlife's work to mobilise and communciate data in order to influence conservation action and communicate the science behnd what we are doing.
What didn't work well	The extent to which project partners will utilise the data they have been provided with is somewhat of an unknown at this time. Work will be done post-project to ascertain how useful the data is, and how it has been used (if at all) to inform conservation activity.
What we learned	Maps showing habitats, climate factors and species are a powerful tool when communicating with people and communities. They enable people to develop a deeper understanding of conservation issues at a landscape-scale and have proved to be extremely engaging, increasing percieved relevance and accessibility.

Figure 31 Lessons learned from the project mapping and RRA work.

Recommendation 1 -

Continue to collect Rapid Rainforest Assessment data and expand to other rainforest areas

- Collect national rainforest data via a new app (funding achieved to support this)
- Use app to provide insight into appropriate management at the surveyed site
- Continue to analyse and disseminate data to interested parties in order to improve and promote conservation.

Recommendation 2 -

Utiilise data to further focus conservation activity

- Bring together lichen and bryophyte data from project sources to fully understand the IPA network within the region
- Consider redefining the region's IPAs (and beyond) to take account of both lichen and bryophyte interest.

Figure 32 Key recommendations from the project mapping and RRA work

4.4 A legacy of skills, knowledge and confidence amongst educators and outdoor leaders leading to positive outcomes for communities.

The project aimed to address the lack of confidence, knowledge and skills needed in the region to share knowledge about the region's temperate rainforest heritage more widely in the community. The project's educational opportunities for professional educators and volunteer walk leaders were based on several assumptions as explored in the problem tree Figure 34, which explores the problem of a lack of information for educators and how this affects opportunities for communities to learn about this natural heritage. As a way of tackling the problem, the project believed a variety of learning and development opportunities for educators, with potential for more than one interaction with the project, supported by high quality resources, would effect greatest change.

Throughout the project 16 sessions targeted at educators were run with 11 in person and 5 online. These reached 185 educators. A further 33 volunteer walk leaders attended 2 sessions for that audience. We know that educators also accessed the range of other learning opportunities on offer including the learning walks which introduced the rainforest and lichens, bryophytes and ferns and supported beginner ID skills development, and the Resilient Rainforest training programme. 8 educators were also the beneficiaries of Forest Bathing practitioner training.

Audiences for this type of training fall broadly into these categories (Figure 33 below).

Figure 33 Educator training audiences

Workshops were often delivered as CPD in partnership with relevant organisations e.g., Mountain Leader Training Association (MLTA) or local networks of educators e.g., Somerset and Exmoor Environmental Educator Network (SEEEN).

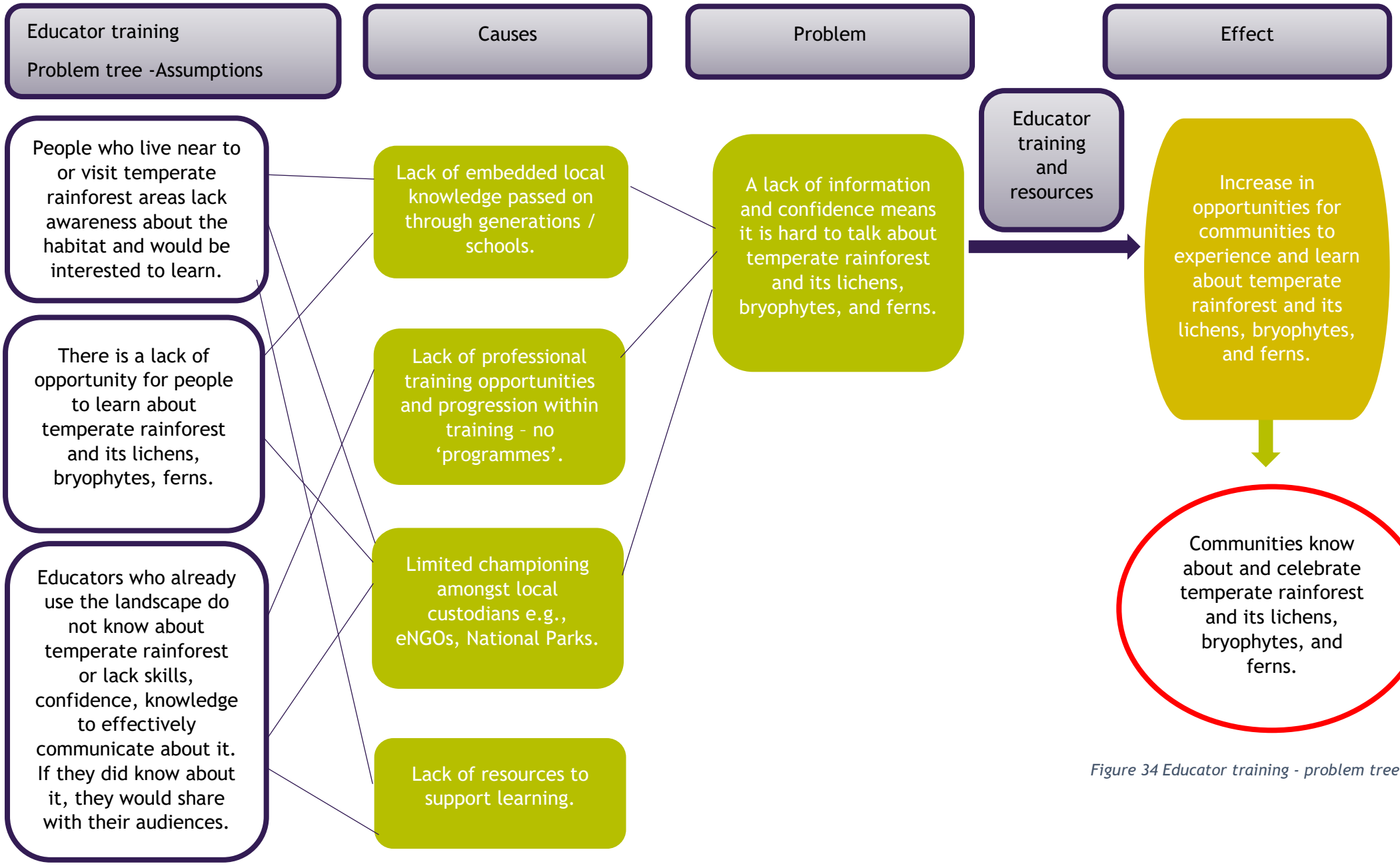


Figure 34 Educator training - problem tree

One practitioner who engaged as envisaged, with multiple aspects of the project, and delivered activity within the local community as a result is Geri Skeens. Figure 35 shows Geri's engagement journey with the project. The pen portrait below explores more about who Geri is, what motivates her and the impact of the training she accessed through the project. Figures 36 and 37 show Geri in action.

Geri Skeens – Outdoor Educator

"I have always worked with people and development. I like hillwalking and working with people so trained as a moorland leader to help people to get out there and appreciate it, helping them to understand emotionally and intellectually why conservation matters. I've become really interested in lower plants and through Plantlife training I've become more interested in woodland and have developed skills like using a field guide.

With knowledge I've gained from Plantlife's training I've developed a habitat day for upland oakwood for other Mountain and Moorland Leaders and delivered 'Explore a rainforest' for the public. I've also supported several landowners to understand what a rainforest is, develop basic ID skills and carry out a Rapid Woodland Assessment as well as carrying out targeted bryophyte surveys."

Impact of training and resources

Outcomes for heritage and communities

- More species information - Species surveys are helping to develop understanding of where temperate rainforest is and its condition.
- Better local connections - Geri has developed a relationship with the Bovey Valley NNR manager so that she can use the site for her delivery and support on a voluntary basis their public engagement programme.
- More local expertise - Increased awareness of temperate rainforest habitat amongst the public and moorland leaders. Geri delivered in 2021:
  - training to 14 individuals as CPD for outdoor leaders (supported by ID guides)
  - 15 people days of training to the public
  - 2 days with landowners
  - Skills share sessions with other NGB and educators trained.

Outcomes for people

"A significant impact of the training has been how it has given me the confidence and the skills to deliver nature focussed workshops. Not only have I learned facts about rainforest and how to identify species, by observing how Plantlife has delivered the training I have been able to pass these skills and knowledge on to others. This modelling has been important in growing my confidence. I have been disseminating my learning on temperate rainforest, lichens, ferns and bryophytes to Moorland Leaders and the public which has increased their knowledge, enjoyment, and appreciation of the habitat."

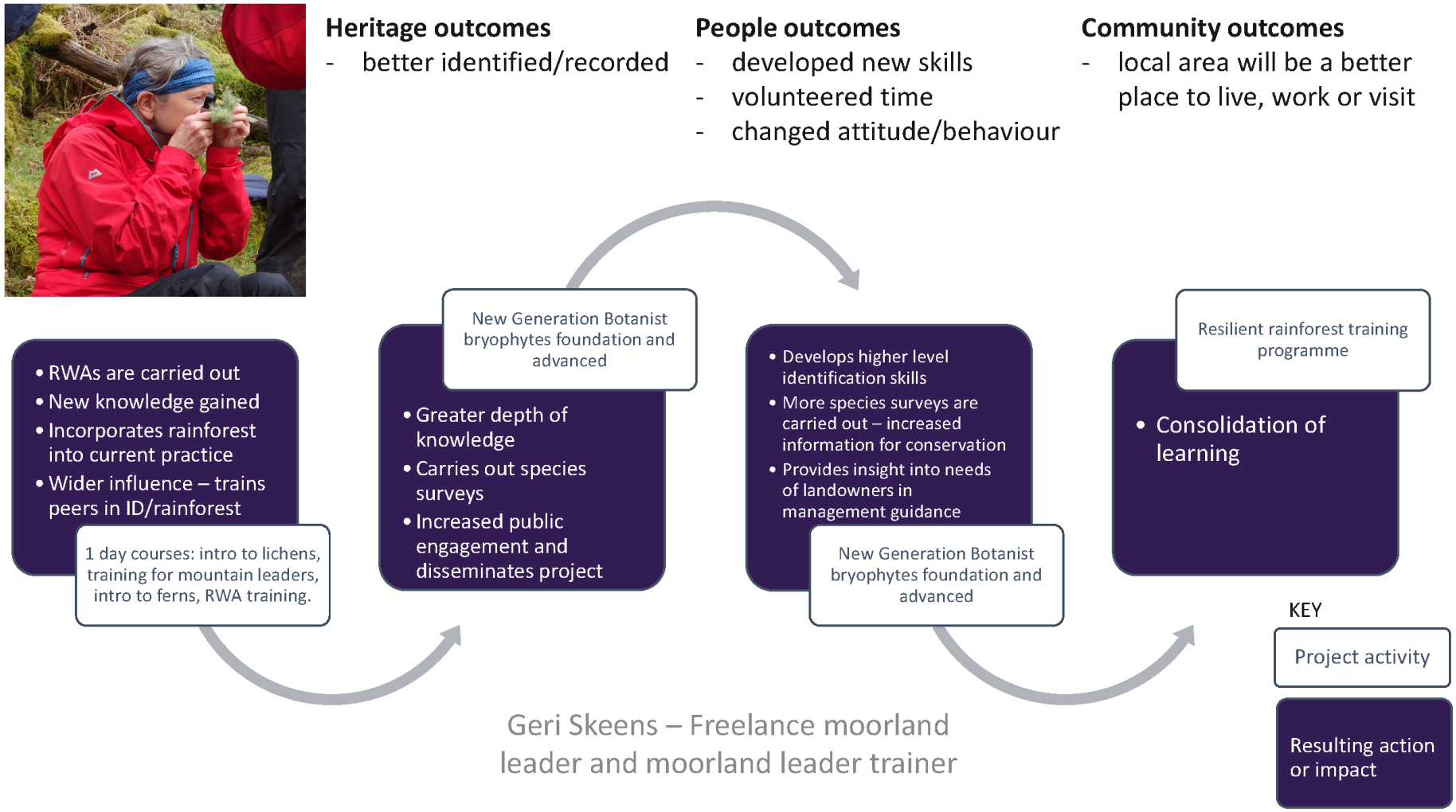


Figure 35 Geri Skeens' Project pathway

Figure 36 Granite Elements artists in the Bovey Valley, Dartmoor, learn about ferns from Geri for an artwork.

Figure 37 Lichen and bryophyte group skills share coordinated by Geri.

Feedback from other educators involved in training.

Teachers

"You provided our children with such a powerful and lasting learning opportunity, with a chance to contribute to real data collection."

Josh Wedderkop, Crowcombe & Stogumber School

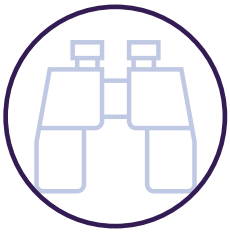
Outdoor educators / Forest School leaders

"Thank you soooo much. It was fantastic and I really enjoyed I've booked on the one today for ferns. In terms of the resources, any ID guides would be incredible, maybe 10 copies so I can show them on mountain training award - training courses so future leaders are also helping raise awareness and should help cascade more interest."

Matt, Freelance Outdoor Instructor

"The repetition of material has been great for helping to cement/remember information. The lichen field day was fantastic for me as I'd only had an hour or two in the field with Plantlife on lichens before. Previous training from Plantlife had equipped me to start delivering courses on rainforest/bryophytes/lichens at an introductory level and I now feel even better informed and more confident to continue developing and delivering these topics. Thank you!"

Outdoor educator on Resilient Rainforest training.



Rangers / volunteer coordinators and engagement officers

"I just wanted to say thank you for coming up last Tuesday to lead the ID and intro session. I've had some really good feedback from the volunteers and a couple of them have expressed interest in getting more involved, so hopefully you may see them again soon."

Aislinn Mottahedin-Fardo, National Trust Ranger - Holnicote Estate

"The project has brought us a whole range of great opportunities to engage with our existing volunteers and a way to attract new audiences too. Identification sessions were popular in our Wildwatch programme for several years and these in the field sessions were skilfully led by Rachel and Alison. Rapid woodland assessment training helped develop their skills base to a stage where they can now comfortably undertake surveys independently. Seeing our volunteers enthusiastically sharing their knowledge with colleagues when we're out on site is testament to the great teaching they've been given by the project. Online sessions developed during lockdown, proved to be a popular part of our online engagement, helping sustain the enthusiasm of volunteers. We will make good use of the other online resources now available to us."

Jackie Kiberd, Volunteer Support and Partnerships Coordinator - Exmoor National Park

Walking group leaders

"I will most certainly use my newly acquired knowledge as an Educational Guide for the DNPA and also with my adult walks. Also, I am asked from time to time to take my daughter's Home Ed group out for walks etc, so this would make for an excellent theme for a walk."

Walking group leader, Dartmoor.

"I thoroughly enjoyed the entire programme and was only sorry when it ended. As a walk leader it has given me confidence to talk to the public about ferns, bryophytes and lichen that I didn't have just a few months ago."

Walking group leader on Resilient Rainforest training.

"Thank you for the most enjoyable and informative "Introduction to Atlantic Woodlands" field day that you organised at Burrator Reservoir. I did appreciate your patience in showing us all how to use the fern identification charts and am still filled with wonder by the sight of a lichen through my newly acquired hand lens. Your enthusiasm was infectious! The follow up email with the attachments is v useful."

Kay, Volunteer walking group leader, Dartmoor.

Figure 38 Outdoor educator training, Cornwall

Learning

What worked well	Providing educators with experiential learning opportunities which proved popular with the audience and enabled us to transfer knowldge and skills where it could be effective in the longer term.
What didn't work well	Engaging with schools through teacher training was challenging. Covid 19 meant that schools were closed for large parts of the project and were not interested in engaging while they were open due to the pressure of catching children up with the curriculum.
What we learned	Providing educators with opportunities to discover the habitat and species together with modelling good practice is effective in cascading learning. This is particularly effective where we tap into networks of educators e.g. regional networks (SEEEN) or national bodies e.g. MLTA.

Figure 39 Lessons learned from our work with educators.

Recommendations for the future

Recommendation 1 - **Continue to engage strategically with this audience where possible where we undertake conservation activity to embed learning and development**	Recommendation 2 - **Review school engagement across a range of Plantlife and partnership projects**
• Continue to develop relationships with local networks of outdoor leaders • Build on relationships with groups such as Mountain Leader Training Association regionally and nationally • Explore formalised CPD for this audience	• Understand whether Plantlife is best placed to deliver school activity and whether long term impacts are either possible or desirable • Review teacher training and how effective that is at embedding skills and encouraging action longer term

Figure 40 Key recommendations for future engagement with outdoor leaders

Figure 41 Mountain Leader Training Association training, Dartmoor ©Julia Lewis

4.5 A legacy of language, digital resources, and know-how

Developing a shared language

Historically Plantlife has used the term ‘Atlantic woodland’ to describe a range of woodland types and characters within the oceanic/hyper-oceanic climate zones. At project inception, this term was used by Plantlife, often interchangeably with the term ‘temperate rainforest’. It was common for others to use a range of other names as illustrated in Figure 42 below, often to describe what could broadly and in most instances (if not from a more technical perspective) be called temperate rainforest. As the project progressed, it became clear that ‘temperate rainforest’ was a more evocative term which supported engagement with partners and stakeholders and so became more commonly used by project staff.

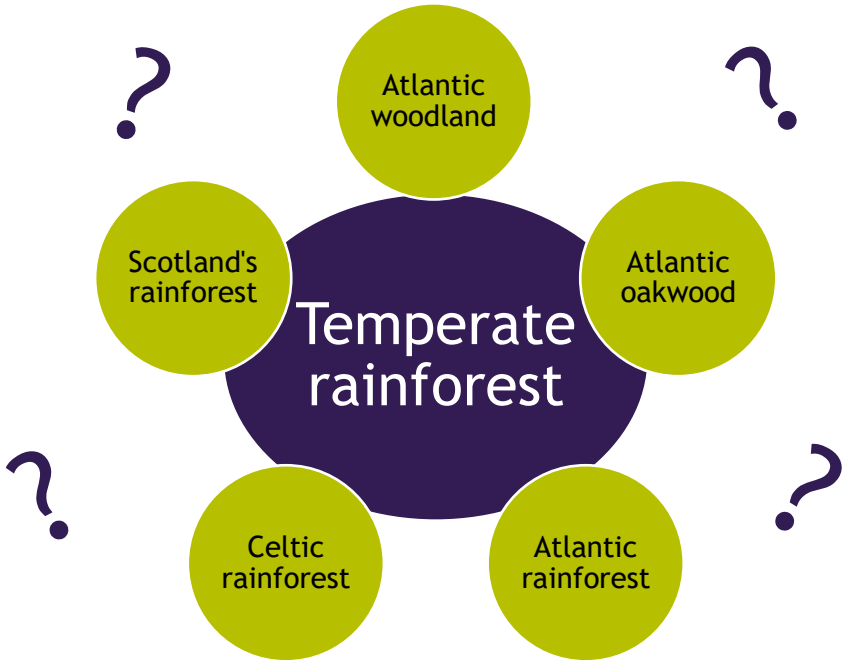


Figure 42 Alternative names used for temperate rainforest.

In 2020 a decision was made within the Alliance for Scotland’s Rainforest (ASR) to unify language. Their experience was that the use of so many different terms, although perhaps correct on a technical level, was unhelpful when it came to speaking with a unified voice and developing shared objectives. Julie Stoneman, ASR project manager advocated strongly for the adoption of the term temperate rainforest within Plantlife.

Impact

The use of a single term has caused debate amongst some expert communities, (some of whom prefer what they would consider to be more accurate terminology), but overwhelmingly it has enabled the land management community to come together with a shared understanding and celebrate the specialness of the habitat. Indirectly this has supported what are the early stages of a south west regional rainforest alliance. Awareness of the habitat amongst the public has grown and although there is more to be done around unifying language, most key stakeholders now adopt temperate rainforest to describe the habitat.

Developing digital resources and know-how

The utilisation of digital tools and the online space has changed dramatically since the project was developed. COVID-19 restrictions fast-forwarded Plantlife's use of online and digital tools and moved from hesitantly dipping its toe into the water, to wholeheartedly embracing new and continuously developing ways of working.

Within Plantlife, the project team pioneered new approaches previously untested including delivering identification and other workshops online to the public, volunteers, and professional audiences, creating blended learning programmes and developing digital tools such as self-led online learning courses. The team have supported colleagues to deliver online events and training, increasing our ability to deliver in this, being better skilled, and feeling more confident to do so.

Rainforest Hub webpage Plantlife :: Temperate Rainforest

At the start of the project, printed resources were the norm with some use of PDF and web copies of materials such as management handbooks. Project staff saw potential in taking some resources online and created a suite of resources including self-led learning and management guidance. These are now contained within the Rainforest Hub which has brought together and consolidated resources Plantlife has produced by different projects, at different times and in different geographies. Its creation is part of Plantife's long-term commitment to temperate rainforest conservation across the UK. It has been made possible due to collaboration between Plantlife staff working in the south west, in Wales and Scotland which has strengthened our understanding of differences between the countries and regions, habitat issues and audience/stakeholder needs.

The Rainforest Hub is a one-stop shop for all Plantlife's resources so whoever you are, and wherever you are, you can find resources relevant to you if you are interested in the habitat. The Hub provides resources to learn about temperate rainforest and its lichens, bryophytes and ferns, and resources to support people to and understand how to manage it better and take action for its conservation. Resources include:

- Resources for families and educators including:
    - Discover Forest Ferns (Appendix 2)
    - Am I in a Rainforest? (Appendix 3)
    - How healthy is your rainforest educator guide and survey form (Appendices 4 and 5)

- Self-led online courses for the public, educators and woodland managers
    - Identifying woodland ferns
    - Identifying rainforest lichens
    - Identifying rainforest mosses and liverworts (will be completed post-project as part of Plantlife's ongoing commitment to work in temperate rainforest)

- Identification guides for all UK regions and countries including south west England, the Lake District, Wales and Scotland. For south west England identification guides include:
    - Rainforest ferns (Appendix 6)
    - *Lobarion* lichens (Appendix 7)
    - *Parmelion* lichens (Appendix 8)
    - Mosses and liverworts (Appendix 9)

- Rainforest lichens and bryophytes – a toolkit for woodland managers comprising:
  - Digital toolkit
  - Rapid Rainforest Assessment guidance notes and survey form
  - Managing the rainforest in action case studies from the south west, Wales and Scotland
- Virtual woodland walks a collection of 40 virtual woodland walks and soundscapes.
- Image library hosted on Flickr with supporting PDF for personalised ID guides (Appendix 10).

Other resources relating to data management can be read about in Section 5.3 of this report 'A legacy of information to support practical conservation.'

Learning

What worked well	Learning from experiences of colleagues in other projects around language use and taking a decision to unify terminology. Being 'brave' and trialling approaches to digital engagement has led to rewards including reaching new audiences, creating a legacy of resources and know-how and tools colleagues can continue to utilise post-project.
What didn't work well	More work is to be done to win over other stakeholders in terms of using temperate rainforest as a term, which may be possible through the emerging south west alliance.
What we learned	That language is powerful and speaking with one voice is critical for gaining understanding and support. That using the online space has proven benefits for widening participation by providing flexibility and easier access to opportunities.

Figure 43 Key learning about language and digital engagement

Recommendations

Recommendation 1 - **Explore other digital tools for learning and development**	Recommendation 2 - **Invest in training for staff and volunteers**
•We have used a limited range of tools and there are many more which could be utilised to support learning and development. Investing in new technology including apps and L&D software will have to be ongoing as the pace of change is so great.	•While it is possible to be self-taught, there are benefits to recieving training that will enhance our outputs e.g. photography and videography/editing skills for all staff involved in learning and development.

Figure 44 Recommendations for future digital engagement

5. Organisational learning and insight

5.1. Introduction

The project team employed pioneering approaches in all the project's programmes. Consequently, Plantlife has learned many useful lessons which will help to shape the future direction of work on temperate rainforest conservation and engagement but also on our conservation and learning and development approach across the organisation. Areas where we have gained particularly interesting insight, which are explored in this section of the report are:

- Woodland management and monitoring
- Developing skills within the land manager community
- Taxonomic skills development
- Developing the next generation of conservationists
- Project design and partnership working

5.2. Learning about woodland management and monitoring

Through the practical woodland management and monitoring work, Plantlife has pioneered new approaches that are informing our ways of working, and several lessons have been learned to improve future activity.

Management: key lessons learned

1. **Grazing and browsing are fundamental to maintaining the conditions created by management in the long-term.**

Figure 45 Cattle grazing temperate rainforest

Light levels have been improved at all sites thanks to management tackling dense holly, beech and tree regeneration. However, in response to increased light levels, monitoring has also shown increases in shrub growth (e.g., bramble, bracken, ivy) and tree regeneration (e.g., holly seedlings and also hazel and oak, which at times are encroaching on important habitat features such as veteran pollards). With appropriate grazing levels, this regrowth would be kept in check.

However, most sites lack appropriate levels of grazing and browsing—and this is one of the main reasons why they had become increasingly shaded in the first place. Unless grazing/browsing levels are addressed, site managers need to carry out regular (every 2-3 years) mechanical maintenance in order to prevent conditions reverting back to being heavily shaded.

Whilst we recognised the importance of woodland grazing and browsing previously, this project highlights:

- How quickly shading problems can re-emerge after management in the absence of grazing.

- How beneficial it is for woodland managers (in terms of saving time and money in future) to ensure optimum grazing/browsing levels are in place prior to management.

Recommendations for future

Examples from this project, highlighting the importance of grazing/browsing for maintaining desired conditions, can be used to make the case to land managers for introducing/increasing grazing and browsing. Where land managers cannot introduce/increase grazing and browsing, mechanical maintenance is essential and plans should be put in place to ensure ongoing maintenance is feasible. Where maintenance can be done with hand tools, *e.g.*, targeted control of bramble around important lichen features, volunteer work parties can be a good solution.

2. It can be difficult for land managers to secure contractors with the right expertise.

There were occasions where land managers found it time-consuming and difficult to secure contractors for prescribed work, in one case resulting in planned work not being able to go ahead (boundary works at Hawkcombe Wood NNR). There are a number of factors that contributed to this including:

- Shortage of contractors with the right expertise (compounded by disruption from COVID-19 pandemic and ash dieback, which diverted contractors away from routine work to deal with urgent health and safety challenges).
- Difficulties finding enough contractors with the right skills to invite to tender for work that will exceed £10,000 in order to be compliant with NLHF procurement policies.

Recommendations for future

It will be important to understand whether this problem of a shortage of contractors still exists (i.e., whether it was circumstantial because of current events, or whether it is a long-term problem) and whether it is a problem across temperate rainforest regions. If there is a genuine and continued shortage, then it will be important to look at solutions to this, for example, there may be a sector-wide need for more specialist training for contractors.

3. Land manager partners sometimes have limited capacity to organise and supervise contractors due to their wider demands.

Figure 46 Contractor removing holly at East Dartmoor NNR

This was particularly true amid broader challenges faced during the project timeline – namely disruption caused by the COVID-19 pandemic and the speed of progression of ash dieback in the region, which pulled many land managers and contractors away from routine work to deal with urgent health and safety challenges.

However, once contractors were properly briefed and inducted, the time invested was generally worthwhile and work could be undertaken efficiently. Sam Manning, assistant site manager for the Woodland Trust at East Dartmoor reported: "…it took a while to fully

induct [contractors], and particularly newer sub-contractors, into the methodology so they could make their own decisions about habitat improvement at scale, but once this was achieved some very good quality, efficient work was carried out…".

Recommendations for future

Plantlife should consider whether the organisation needs to take a more direct role in briefing and communicating with contractors (see point 4 below).

4. It is important for Plantlife as an organisation to have input into contractor briefs, including for non-project related work that is taking place within project areas.

Whilst in most cases, having land managers take responsibility for briefing and supervising contractors worked well and contractors were well-informed of project aims, there were cases of miscommunications.

Figure 47 Sam Manning (L- Woodland Trust) and Dave Lamacraft (R- Plantlife) at a demonstration event, Dartmoor

Land managers at East Dartmoor NNR reported that "relying on contractors to carry out the habitat improvement was overall a very effective method, but very occasionally there were some miscommunications, sometimes leading to areas not being opened up enough, or some trees that would have better been left being removed. However, this did not affect the outcome in an overall negative way". This demonstrates the importance of investing time in explaining the nuances of specific projects to contractors, and supervising contractors/maintaining regular communications throughout the process.

Additionally, the project highlighted the importance of Plantlife being kept informed of any work taking place within management areas, even if this work is not related to the project itself. At Tarr Steps NNR (managed by Exmoor National Park Authority), contractors were brought in to carry out ash dieback works, not related to the project, but within the areas where the project was funding work. The National Park hired an ecological consultancy to brief the contractors, but the consultancy was not informed of the lichen interest and related conservation work in the area. This resulted in the loss of several ash and hazel trees that had populations of *Lobarion* lichens (the hazel was inadvertently damaged during ash felling, and as a result were coppiced). Whilst the work was unavoidable for health and safety reasons, losses of lichens could have been mitigated by retaining the lower portion of the ash trunks and damaged hazel to enable their lichens to survive as long as possible and colonise other trees. This breakdown in communication happened despite the project being aware that ash dieback work would be needed in the area at some stage and having had conversations around ash dieback mitigation with the National Park. A clear process for notification of proposed work in areas where project work is taking place, along with a requirement to be involved in briefing contractors, would have prevented this from happening.

Recommendations for future

Plantlife should be involved in contractor briefings at (either in person, verbally, or through written briefs) and the importance of regular communication between land managers and contractors should be emphasised. Additionally, Plantlife and land managers must maintain more regular communication during work phases to identify where shortfalls in land manager capacity can be met by Plantlife staff.

It will also be important to ensure agreements are in place with land managers from the outset, that state land managers must inform Plantlife of any non-project works taking place within areas where Plantlife is funding other conservation activity. This includes notification of contracts being awarded and start dates for work, so that timely briefings can be provided on the lichen/plant interest and management considerations to all necessary parties.

Monitoring: key lessons learned

1. **Land managers typically lack time and/or expertise to carry out monitoring themselves or develop monitoring programmes.**

   Therefore, supporting land managers to develop appropriate monitoring is a useful activity, and designing monitoring so that it can be sustainable long-term is essential to ensure that monitoring can be completed. We found that by investing time in developing survey methods and trialling methods with volunteers, it is possible to collect large amounts of useful data through volunteer surveys (see point 2 below).

   ### Recommendations for future

   Where long-term monitoring is needed, land managers should be supported to develop monitoring programmes, and plans and infrastructure put in place to ensure this can continue long-term after project funding ends. Our project suggests volunteer engagement can be an effective way to achieve this.

2. **There is considerable appetite among local communities and existing conservation volunteers to be involved with monitoring.**

   For volunteer monitoring to be successful, especially long-term, it is important for there to be a large pool of volunteers to call upon who are enthusiastic about the project. We found that there was a lot of interest, often from existing volunteer groups who were already working with the land manager organisations but generally on practical tasks or people engagement activities. When we advertised volunteer training for monitoring work, these sessions were often over-subscribed. From informal discussion and feedback emails with volunteers (see volunteer quotes in section 4.2.2), several key motivations were apparent for their involvement:

Figure 48 Volunteers being trained in the Quantock Hills

- Learning more about lichens and woodland management because they own/manage woodland themselves and want to apply it to their own management.
- Wanting to gain more experience in lichen identification and survey work for career progression.
- Interest, sense of satisfaction and enjoyment taken from being involved with real science, contributing to conservation, finding out the results of the work and learning more about the woodland ecology.

Recommendations for future

Involving volunteers in monitoring can be a useful and enriching experience, helping to address resource limitations, and having many positive outcomes for participants. To recruit and retain volunteers it is important to build in plenty of opportunity for skills development and learning, and to ensure monitoring results are communicated back to volunteers in a timely way.

Figure 49 A tree covered in liverworts with a small piece of Lobaria pulmonaria in the centre.

3. **It is important that methods are trialled with volunteers and training needs are considered.**

Survey methodologies were rigorously trialled with volunteers to ensure they were user-friendly. Despite this, there were aspects of the monitoring where data quality was affected by lack of expertise and/or training. Data quality was compromised where volunteers were asked to take photographs to be used for repeated monitoring. Often the quality of these were poor, with images being blurred or not correctly positioned on the feature of interest. Photography within woodland when the light is poor can be tricky, and image quality is dependent on the skill of the photographer and the quality of the camera.

Recommendations for future

If photography is being used as part of monitoring, volunteers need to receive some specific training to capture good quality images and/or specific volunteers should be recruited for photographic monitoring who have prior experience in photography.

4. **Monitoring programmes can show positive results for lichens in relatively short timescales, but long-term monitoring is still important.**

This is the first time Plantlife has carried out this scale of monitoring to assess how canopy openness changes (*i.e.,* increasing light levels) have impacted on lichen communities over short timescales (3-4 years). The results show that even within those time frames, it is possible to see positive impacts on lichen communities because of management, both in terms of lichen niche size expanding, lichen community size increasing and new species colonising. This helps inform future monitoring and demonstrates that the management approach is valid and should be replicated elsewhere.

One limitation to the monitoring in this project was the lack of benchmarks to compare against, *i.e.*, what does success look like, in terms of desired light levels/canopy openness for different lichen communities? While our data tell us that light levels have improved and this is starting to have a positive effect on lichen communities, long-term monitoring data will be needed to find out whether the management has gone far enough to achieve truly healthy and resilient lichen communities.

Recommendations for future

To continue to carry out lichen monitoring as exemplified in this project. To provide a reference for success, it would be useful to collect baseline data at sites that are considered exemplar for particular lichen communities, in order to establish what the optimum conditions look like (e.g., light levels/canopy openness). This would provide a useful comparison and benchmark for sites where management and monitoring take place.

5. Apps are extremely useful for streamlining data collection and collation and are generally welcomed by volunteers.

At the beginning of the project, apps were not being used widely for monitoring within Plantlife, and early versions of monitoring surveys (e.g., the East Dartmoor wood-bank survey) were paper-based. This made data collection awkward, as some data had to be written down, whereas other aspects required photographs to be taken, labelled, and sent to project staff, who then had to manually enter data and organise photographs into labelled folders. Data then needed to be mapped in ArcGIS.

During the project, we trialled the use of the ArcGIS Survey123 app for data collection, and following a successful trial, rolled this out for all the volunteer monitoring work. The app allowed volunteers to enter all their data (including photos) in one place, prevented people from forgetting aspects of the data collection (as fields had to be completed to progress to the next part of the survey), and made the process of data collation much more efficient (once submitted, data is automatically mapped in ArcGIS and a spreadsheet is created).

Figure 50 Volunteer surveyors learning how to use the Survey 123 app.

Recommendations for future

Survey123 should be considered as the default method for collecting monitoring data over the use of paper forms.

6. Volunteers can make useful contributions to analysing monitoring data, e.g., digital volunteering opportunities

The project generated hundreds of images of forest canopies, taken using a hemispherical camera, to quantify canopy openness (as a proxy for understanding changes in light levels). These images need to be processed and then analysed in order to extract canopy openness values. This requires a manual threshold being set for each image to allow the computer programme to accurately determine which pixels are sky and which are elements of the forest canopy, understorey and wider landscape. For each image this can take several minutes, making the process very time consuming for an individual member of staff.

Figure 51 A fisheye photograph recording light levels in the woodland canopy

To help with this problem, the project recruited a team of 10 digital volunteers, and an online training package was developed to help them learn the image analysis method (see here). Each volunteer was then given a batch of photographs to analyse. This made the process much more efficient and also increased the reliability of the data, as thresholding is a subjective task, so with the increased capacity it was possible for each set of images to be analysed by 2 or 3 different volunteers.

Recommendations for future

Where there are large data sets, particularly including imagery, consider the use of digital volunteers to increase the efficiency of data analysis.

7. The Rapid Rainforest Assessment is a powerful tool that provides useful information on the condition of potential temperate rainforest sites, whilst also helping inform land management decisions for lichens and bryophytes.

The RRA data has supported our understanding of temperate rainforest condition. Where more detailed site-level assessments have been available for sites where RRAs have been carried out, the findings from both are complimentary, indicating that the RRA can identify the key management issues at a site. Furthermore, where New Generation Botanists undertook indicator species surveys at sites that had scored highlight through the RRA (indicating high potential for lichen/bryophyte interest), new indicator species were often found.

Based on this success, Plantlife has invested staff time to update the RRA and make it applicable UK-wide. Some additional fields have been added to the survey based on user-feedback and an internal working group scrutiny.

Recommendations for future

Roll-out the revised RRA survey to all rainforest regions of the UK and collect a national rainforest data set via a new app (funding achieved to support this). Data can be used to support land manager advice and to draw out regional and landscape-level themes and patterns to inform wider conservation campaigns and advocacy work.

Recommendations for the future – a summary of points covered

Recommendation 1 - Review how we work with contractors	Recommendation 2 - Continue to promote learning and development	Recommendation 3 - Make monitoring a core aspect of management
•Factor in to planning project staff time to support partner organisations with obtaining, briefing and communicating with contractors. •Agreements should ensure Plantlife is notified of works taking place within areas where funded conservation work is taking place. •Explore the contractor shortage - is it regional/particular to the habitat? Consider what part can we take to address this e.g. provision of training.	•Use online case studies to inform and influence land managers and promote good practice •Train volunteers to use technology e.g. apps / analytical tools / specialist equipment to improve and facilitate monitoring •Use Survey 123 as default over paper forms.	• Continue monitoring and supporting monitoring at sites where we have worked and identify core staff to take this activity on. •Collect baseline data at exemplar sites for particular lichen communities. •Support land managers to develop monitoring programmes and involve volunteers in this.

5.3. Learning about developing skills within the land management community

Throughout the project, training sessions suitable for land managers and others involved with managing and interpreting the rainforest were delivered on species identification, public engagement, and how to assess woodland condition using the Rapid Rainforest Assessment. This training was designed to bridge a skills, knowledge, and confidence gap, and enable others to implement change for temperate rainforest.

To provide a targeted comprehensive learning programme with progression for these audiences the Resilient Rainforest programme was devised – a series of blended learning experiences covering species identification skills, woodland management, and rainforest education. See appendix 11 for the training menu. A full report on this programme including feedback from participants immediately after the training and one year on can be read in appendix 12.

Assumptions were made about the audience and their needs to devise the Resilient Rainforest programme. What these were and whether/how they were borne out can be seen in Figure 52 below.

Figure 52 Assumptions made when devising land manager training.

Assumption	What actually happened	Supporting participant feedback
Training would be welcomed by the regional land management community	The programme was well attended with 98 people attending 21 sessions (440 attendances). These were all from the target audience groups we identified for the training.	*"I manage several woodland reserves as part of the Cornwall Wildlife Trusts land holdings. By increasing my knowledge and understanding of the species found within temperate rainforests I hope to make more informed management decisions."* Land manager – pre-course survey
A flexible programme providing choice for participants over which sessions they attend and when would encourage participation	An average of 6 sessions were attended by each participant with many commenting on the benefits of having choices for times and days of sessions.	48% of those surveyed stated that having a choice of sessions was very important and a further 45% stated it as being important.
Progression in learning and opportunity for consolidation through multiple contacts would make training more impactful	People came to sessions on topics that they had previously touched on and commented that the consolidation was useful in building confidence. People positively responded to the requirement to attend introductory sessions before taking part in field visits.	*"I thoroughly enjoyed the training sessions; it was really valuable to revisit topics covered in previous sessions to reinforce what we had learnt before. i.e., the intro sessions online followed by the field visits. The field visits really brought the topics to life."* Land manager – post-course survey.

Seeing management in action would inspire change and action in others	Participants were able to engage with the content at a deeper level, having had grounding through online sessions. Familiarity with the delivery team and the land manager community enhanced these sessions.	*"Just wanted to say thank you for organising a great day, lots of information I can use in my work on the Quantocks and great to see a practical example of it all in action at Holnicote."* Jo Chesworth, Lead Advisor – Resilient Landscapes Somerset Natural England
Networking within the cohort would be important and impactful	Familiarity with the delivery team and the land manager community which grew as the programme progressed, enhanced the later management in action sessions and has led to more lasting connections amongst the cohort.	Over 60% of participants said that they will be keeping in touch with people they met through the programme and over 25% said they would like Plantlife to take a lead in providing networking opportunities. *"The Resilient Rainforest training programme was brilliant! Very well organised, great tutors and some excellent resources. The training also provided valuable opportunities for peer-to-peer learning and networking. Many thanks."* Land manager post-course survey.

Land manager development – Two case studies

A further assumption was made about how throughout the project people would engage with it in multiple ways and so providing a range of repeated activities would be important in providing impact and legacy. This assumption was borne out in the case of Demelza Hyde, National Trust Ranger at Lydford Gorge, and Angie Cruse, small woodland owner, and woodland management consultant at Happy Habitats. Demelza's and Angie's entry points and journeys were different. Mapping their journeys illustrates that where there have been multiple and ongoing contacts, there have been benefits for temperate rainforest conservation and engagement.

Figures 53 and 55 below follow the pathways of these two land managers and the impact/influence this has had.

Heritage outcomes
- better managed
- better condition
- better identified/recorded

People outcomes
- developed new skills
- changed attitude/behaviour

Community outcomes
- negative environmental impacts reduced
- Local area will be a better place to live, work or visit

- RWAs are carried out at Lydford Gorge
- Sire 'rediscovered' as a rainforest site significant for lichens and bryophytes

Rapid woodland assessment training

New Generation Botanist bryophytes foundation and advanced

- Develops higher level identification skills
- Species surveys are carried out at Lydford and other sites – increased information for conservation

- Wider influence – uses knowledge to advise on management at other NT sites and train colleagues
- National approach to as dieback management revised
- Translocation work undertaken

On site advice and guidance

Resilient rainforest training programme

- Provides new learning on rainforest management and rainforest engagement.

Demelza Hyde – National Trust Ranger at Lydford Gorge

KEY

Project activity

Resulting action or impact

Figure 53 Project pathway Demelza Hyde

Demelza Hyde – National Trust Ranger, Lydford Gorge

In Jan 2020 the project's placement student Ahri Weeks visited Lydford Gorge to carry out a Rapid Woodland Assessment. While on site she spotted some *Lobaria pulmonaria* tree lungwort lichen on a tree recently felled as part of the site's ash dieback mitigation. This sparked interest in Demelza and a site visit with Plantlife's lichen and bryophytes specialist Dave Lamacraft followed. Demelza then took part in the bryophyte New Generation Botanist scheme and Resilient Rainforest training to learn more about rainforest management and engaging the public.

Impacts have been significant locally (at Lydford Gorge) and nationally within the National Trust.

Local impacts

- Demelza being an advocate for bryophytes and lichens and rainforest with her colleagues within the wider region.

  "I only knew that there was moss - I didn't know what liverworts were. Really opened my eyes up, the fact that there is temperate rainforest at Lydford (thought it was semi natural ancient woodland). I now have confidence in identifying - moss, liverwort, hornwort, and the 16 species (covered on the course) quite confidently, and how to use the key. I was a complete novice to now knowing a reasonable amount."

- Lydford being 'discovered' as an important lichen site. Although there had been lichen surveys at the site, the information was not 'live' to those managing it.

  "We are reviewing our management plans and created a specific plan for Lydford to focus on the management of lichen and bryophytes and a strong emphasis on managing the woodland as temperate rainforest. "

- New indicator species surveys have taken place (conducted by Demelza)

- Plans to have full site surveys for lichens and bryophytes with intention this will influence long-term management.

  "We are currently undertaking a lichen and bryophyte survey at Lydford, I plan to secure funding to do the same for Shaugh Prior Woods."

- Plans to improve habitats in and around lichen hotspots.

  "This winter we will be carry out specific management e.g., thinning trees, removing ivy etc on areas of the Lydford where we have identified areas of interest for lichens and bryophytes."

- Visitors to Lydford for recreation and engagement including schools have access to new Branching Out project resources which are utilised by staff on site.

National organisational impacts

Facilitating a meeting on site at Lydford Gorge with the National Trust's head of conservation and national lead on trees and ash dieback to discuss lichens and ash dieback mitigation is leading to other positives including their approach to ash dieback being amended to take account of ash being habitat for significant lichen species.

Angie Cruse – Owner Happy Habitats woodland management and consultancy and woodland owner

Angie initially engaged in Rapid Woodland Assessment training and carried out an assessment on her own land. This piqued her interest, and she was keen to learn more about temperate rainforest and its management so that it could inform her woodland management work. To support her engagement with local forest schools she attended a walking group leader training session where she learned more at an introductory level about ferns. Lichens, bryophytes and the rainforest. Her ongoing commitment led to her participation in the volunteering and training of the New Generation Botanist scheme and the Resilient Rainforest training. She is a strong and passionate advocate for temperate rainforest. The depth of her engagement over the whole project lifetime has been somewhat profound. In her words,

"You (the project team) are the essential link to all those that work in the wider environment here in the south west. No one else does that. Every month I hear of someone that I got to know at training, working for conservation somewhere. There is such a network of likeminded people connected. That was down to your team at Plantlife.

We go out there in the field with knowledge and passion.

Every time I'm looking at the ground, talking to a client or anyone, my knowledge always comes back to Plantlife. The connection with Woodland Trust is also down to you and the further courses. I carried on training in NVC and phytosociology because everything I learnt with you made me want to understand more.

Please let the organisation (NLHF/Plantlife) know how much of a difference that has made. How we take care of the habitats and look after the species based on that knowledge."

Figure 54 Angie Cruse

Heritage outcomes
- better managed
- better condition
- better identified/recorded

People outcomes
- developed new skills
- volunteered time
- changed attitude/behaviour

Community outcomes
- negative environmental impacts reduced
- Local area will be a better place to live, work or visit

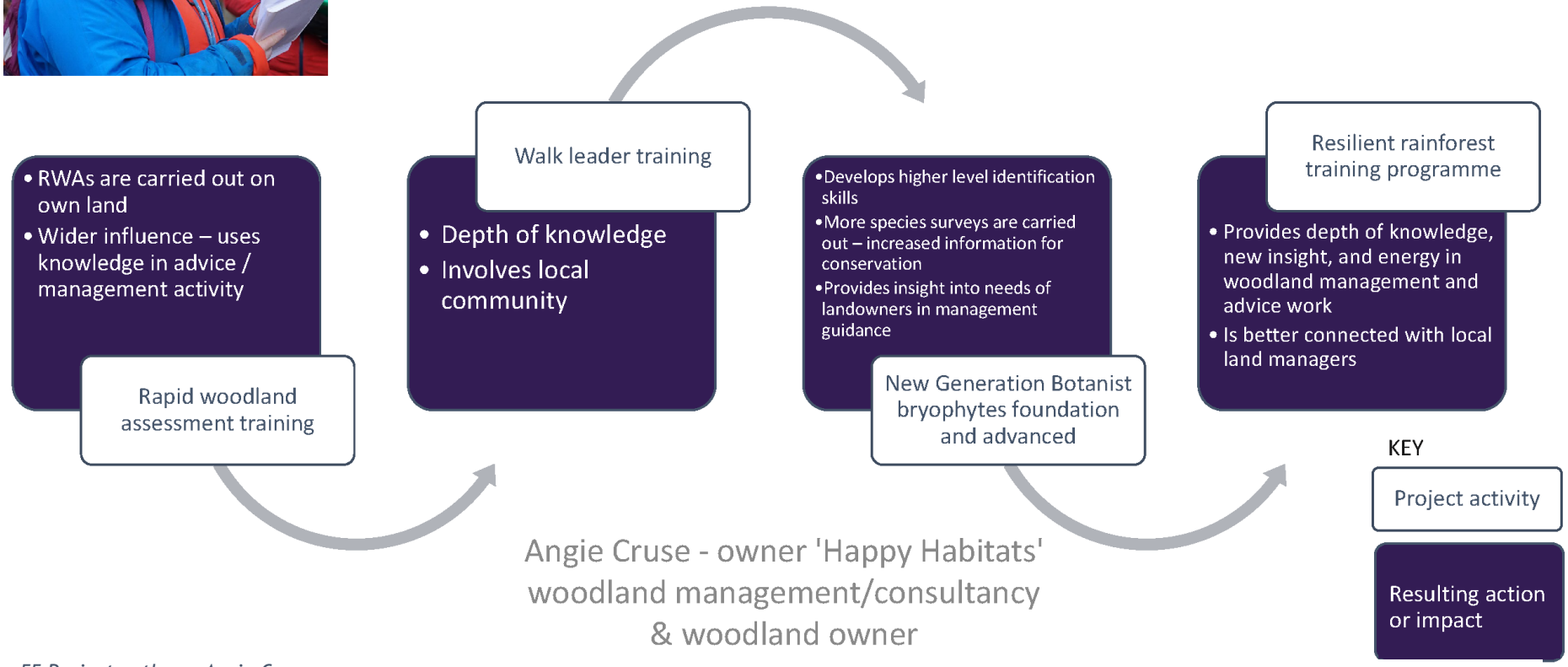


Figure 55 Project pathway Angie Cruse

Organisational learning

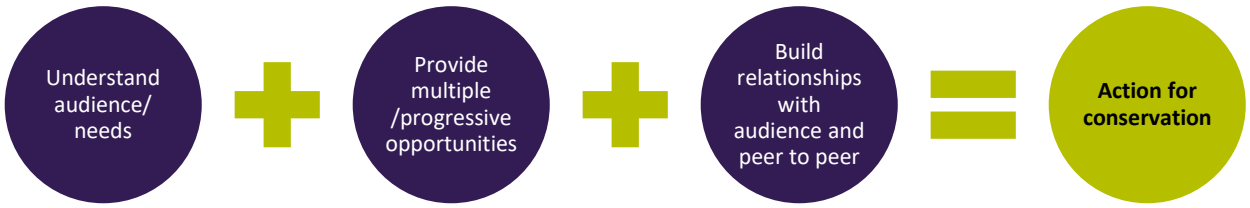


Figure 56 Learning about land manager skills development.

Learning from this programme has been shared with Plantlife colleagues on several occasions. For presentations on the whole programme see appendix 13, and on demonstration events see appendix 14.

Recommendations for future land manager development facilitated by Plantlife

Recommendation 1 - Integrate training with advice	Recommendation 2 - Understand participants	Recommendation 3 - Capitalise on new networks
• Where possible learning programmes for woodland management audiences (and other land management audiences) should be integrated with management advice. For example people attending rainforest management training could be offered a holistic package of support that includes the training, follow up site visit and online meetings to provide support as people implement the learning from the training. This element could be targeted at those who for example: - Manage land within or close to an IPA core, or other area where Plantlife wants to be influential (e.g. there are known important species on their site, or their site sits close to an important site for rainforest species). - Are influential within an organisation or region in terms of cascading information and advice.	• Gathering detailed information on participants prior to learning programmes facilitates better understanding of: - who is participating - whether we are working with our target audiences - what their needs and aspirations are. These detailed surveys should be part of all professional training delivery.	• Consider ways to capitalise on this new network formed through the training. This could be informal knowledge exchange within the cohort which encourages individuals to showcase their successes and insights and additional collaborative training. For future similar programmes, factor in the creation and facilitation of a new network in to programme planning.

Figure 57 Recommendations for future land management skills development

5.4. Learning about taxonomic skills development

Temperate rainforests form one of Plantlife's leadership plans – a way through which Plantlife can meet its organisational goals and outcomes. The idea behind the New Generation Botanist Scheme was to develop a pool of voluntary expertise in key geographical areas where there was temperate rainforest, and for that expertise to be able to work with/alongside conservation organisations to enhance our understanding of where lichens and bryophytes are and how they are responding to management challenges. Such expertise is needed so that rare and threatened species are recorded. Not having accurate or recent records makes it difficult to understand conservation need and properly focus conservation activity on where it can be most impactful.

For a full report on the schemes delivered through Building Resilience in South West Woodlands, see Appendix 15.

Context

Plantlife has run several training schemes to develop taxonomic skills on lichens and bryophytes in order that there is more information about:

- The distribution of lichens and bryophytes in temperate rainforests
- The response of lichens and bryophytes to habitat management, localised management, and translocations.

Knowing where lichens and bryophytes are in temperate rainforests enables conservation efforts to be prioritised. Understanding how they respond to conservation management ensures that site managers and the wider conservation community understand what works and why. The diagram which follows, Figure 60, illustrates the problem the New Generation Botanist Scheme has been trying to solve.

In April 2022, Plantlife's Head of Participation and Learning ran an internal workshop with staff from all projects who have run activity similar to the New Generation Botanist model or are interested in setting up taxonomic training schemes. The aims were to:

- Understand NGBs as a tool for helping us to achieve our objectives.
- Identify impacts to date and areas for improvement.
- Understand NGB as a capacity approach.
- Identify any external stakeholders.

The outcomes of this workshop describe our learning about developing taxonomic expertise via a New Generation Botanist programme.

Figure 59 Learners on the advanced lichen course

Figure 58 Learners on the advanced bryophyte course

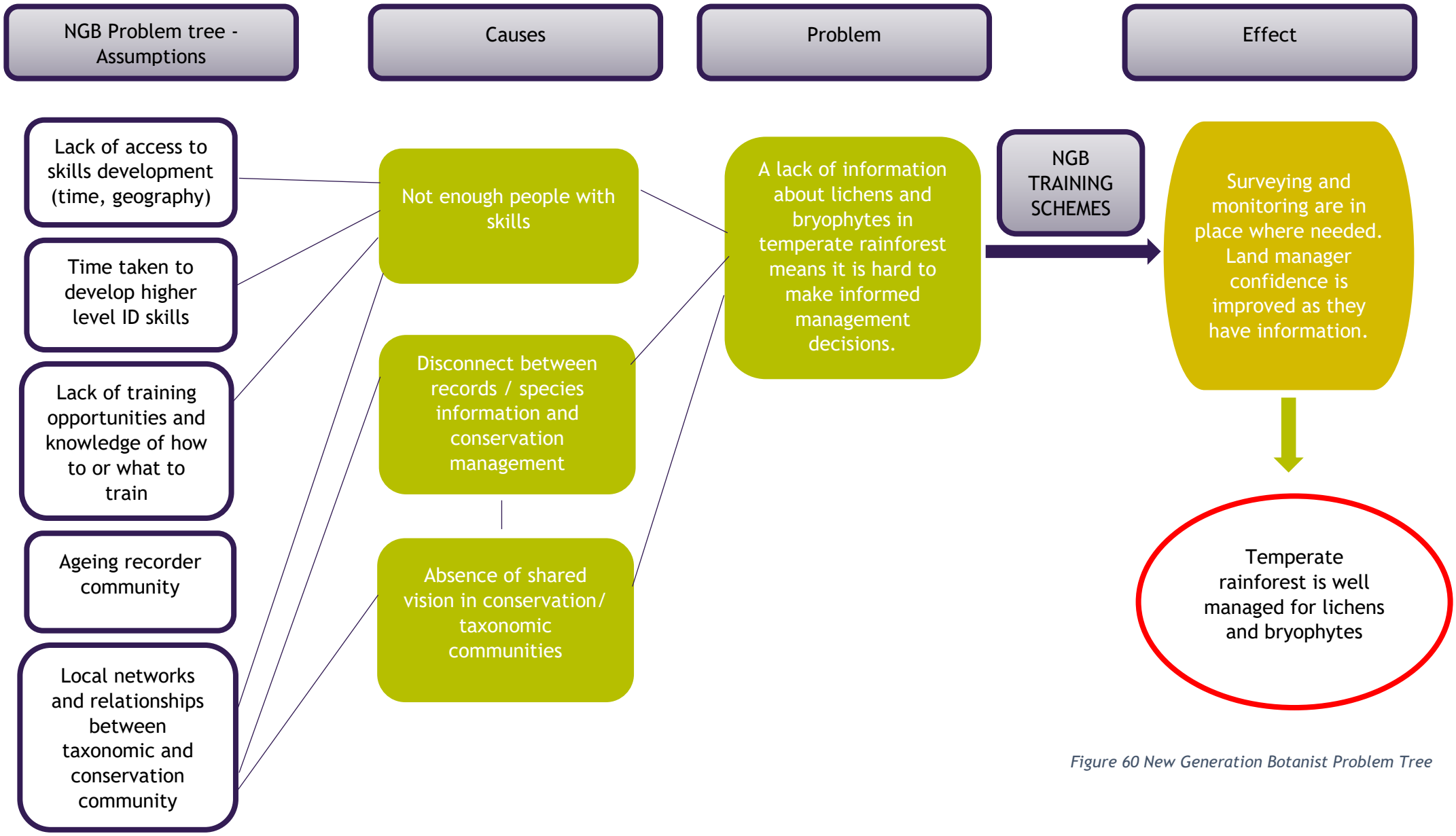


Figure 60 New Generation Botanist Problem Tree

Internal Plantlife workshop outcomes

What have been the challenges?	Several challenges have been identified in terms of the scheme. These centre around impact and legacy in return for investment. When we have funded projects, we have physical capabilities to develop skills, know-how, networks and support, however all too often when funding ceases that capability is reduced and we lose effort that may have gone into the development of training opportunities or course development.
What have we learned as an organisation?	1. Two distinct audience groups for NGB schemes across Plantlife are emerging. These are: • Volunteers / potential volunteers – people who live locally and want to help / contribute to looking after the places they live. • Those working in the sector (conservation management / ecology) and in the locality and those aspiring to a career in the sector. 2. That whilst the desire is for sustained involvement of people who have developed skills to utilise those skills, peoples' continuation cannot be guaranteed; people develop new interests; move away from an area; change jobs. 3. The assumption that the focus on training people who work in the sector (investing heavily) in them will give a return on investment is not fully borne out 4. That there are additional needs that need addressing for example the interpretation of species information and what this means in a management context 5. Plantlife needs to decide whether it is prepared to play a long game, investing in people and project areas beyond project lifetimes. 6. As an organisation if we are to be influential and create the change that is needed, we need to amplify our efforts through empowering others to deliver.
Is there a need for taxonomic training?	A skills deficit remains a challenge and there is an additional view that the Rewilding agenda is removing/devaluing the importance of species and species conservation and that rewilding efforts could lead to the appearance of surface level conservation successes whilst not achieving for species. It is felt that: **There is a sound RATIONALE and that we need A RESILIENT pool of people with key identification skills in the RIGHT place with the RELATIONSHIPS required to contribute.** The task is therefore to consider how we can build / support the development of networked regional ecosystems where skills are needed and understand what the role of Plantlife is.

Figure 61 Outcomes from a Plantlife workshop on New Generation Botanist schemes

Conclusion

Plantlife has developed infrastructure and know-how to support key audiences have the skills, knowledge and networks to deliver action for plants and fungi. We have a proven track record in developing interest and skills. Through these schemes more people have the confidence and

capabilities to deliver plant conservation / related activities whether they are working with us or in other settings.

There have been challenges around legacy and impact particularly around training investment resulting in survey activity in the longer-term. The purpose of skills development is not the end, it is so that information is generated. We acknowledge that to become an expert takes a long time; but for resilience we need to catalyse a bubbling pot of people developing skills. This type of activity is part of the solution to achieving our temperate rainforest ambition going forwards. Within this project we have sought to address this through supporting the development of relationships between those trained (e.g., NGBs) and the specialist societies (e.g., through inviting members to sessions and providing free membership for a year) which can lead to continued engagement and mentoring and development. We have also facilitated relationships between land managers and the NGBs in their area who can provide survey support going forwards.

Close working relationships with the British Bryological Society and British Lichen Society are fundamental in the running of these schemes, providing local expertise on the ground where the schemes are being run. In the Building Resilience in South West Woodlands project, partnership working with local lichenologists, the Devon Bryophyte Group and Cornwall Bryophyte Group meant trainees benefited from mentoring in the field and through online support. For example, the New Generation Botanist bryophyte programme was supported outside of formal sessions through a Facebook group, and local Devon Bryophyte Group members were very active in this, providing ID support and encouragement during and after training. Similarly, the Cornwall Bryophyte recorder arranged extra survey days with trainees outside of the main programme. This has helped with progression, as many trainees have gone on to join the national societies and local recording groups due to relationships and trust established as part of the training programme.

Recommendations for future taxonomic skills development at Plantlife

Recommendation 1 - **Simmer a pipeline of emerging foundation skills through use of our introductory digital materials via an online Botanical Learning Hub.**	Recommendation 2 - **Connect skills / deployment of skills with conservation need and subsequent action.**
•Work with regional partners (National Trust, National Parks etc.) to explore the way in which we can embed a minimum level of useful and value-adding knowledge, understanding and skills in existing and new staff/volunteers in area •Increase the desire / will / ability of local groups to take on to deliver more intensive schemes locally	•Discuss the challenge and explore scope to co-create the solution with the British Bryological Society and British Lichen Society understanding their local barriers (specifically around designing monitoring and surveying methodologies, and a learning pipeline for the experts of the future. •Explore the development of a framework in which species information is more easily presented to site managers – again potentially something to be co-designed with the specialist societies. •Explore New Generation Conservationists programmes. •Develop (accredited?) paid for services with eNGOs / ecological consultancies.

Figure 62 Recommendations for future taxonomic skills development schemes

5.5. Learning about developing the next generation of conservationists through student placements

Figure 63 Ahri recording light levels in the Bovey valley

Although hosting placement students was not in the original project plan, project staff saw potential in hosting students in this way, not only for the benefit of students and the project, but for wider plant conservation in the future. It was hoped that learning about the management of a conservation project and developing practical identification and surveying skills along with broader employability skills and an understanding of the sector, would influence the development of the next generation of conservationists.

The project hosted 4 students (2 undergraduates and 2 postgraduates) between 2018 and 2021. They collectively contributed 300 days of volunteer time to the project and were involved with woodland surveys, developing identification skills, liaising with landowners and the public and project communications.

Organisational learning and recommendations for the future

Project staff have developed a deeper understanding about the recruitment and integration of students. Their reflections are summarised in Figure 65 below.

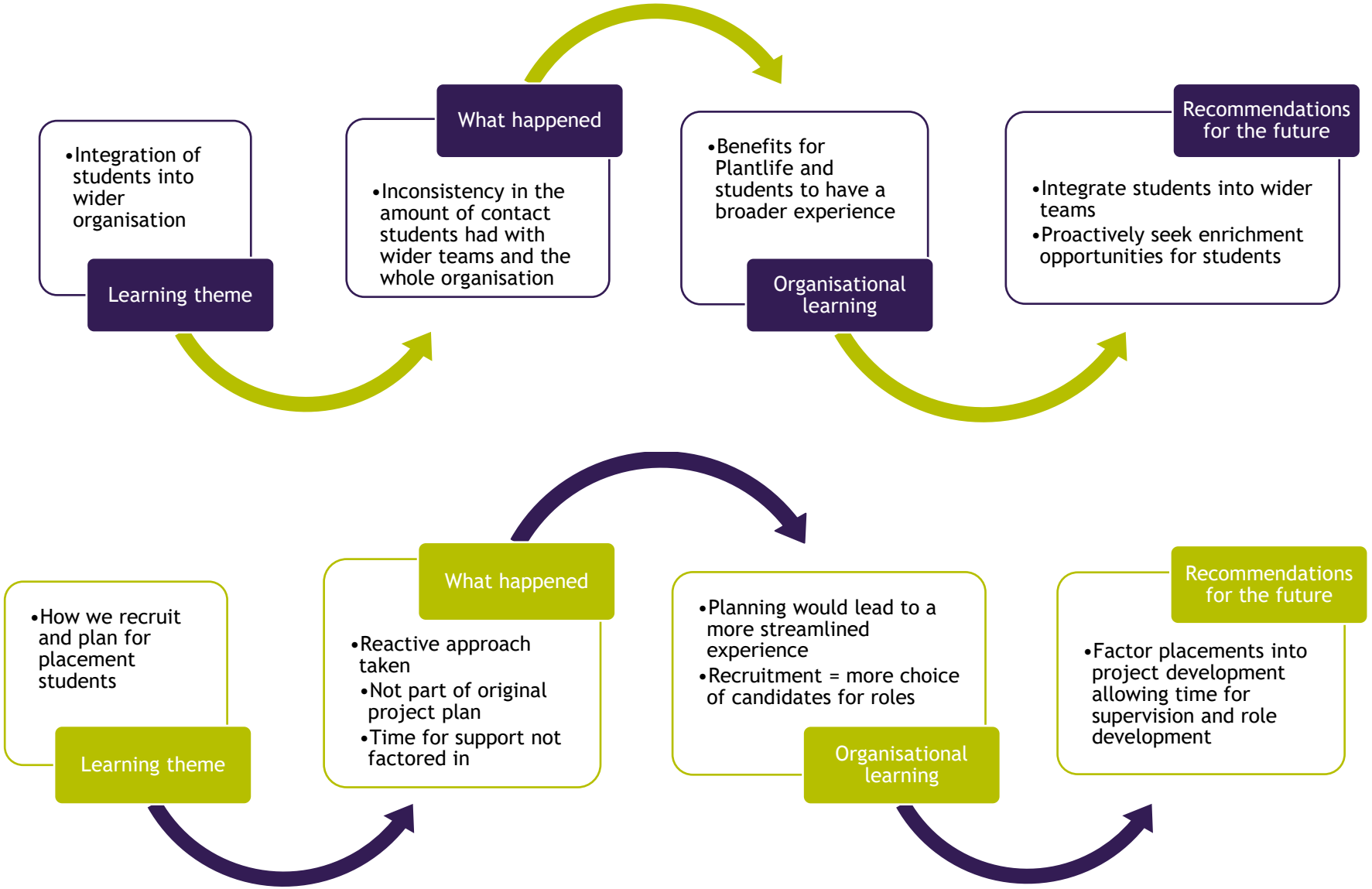
Organisational legacy

When the project started there no recent culture of taking on students or interns at Plantlife. Influenced in part by the approach of the project, and an acknowledgement that as an organisation we should be providing career development opportunities, Plantlife now seeks to support students and people in early careers through placements and paid internships. Plantlife values their contribution across a range of disciplines including conservation, public engagement, and advocacy. How this has developed has been influenced by examples set through this project and it has been made possible due to funding from the National Lottery Heritage Fund to deliver Vibrant Virtual Volunteering everywhere. VVV has opened these opportunities to new audiences and created infrastructure to support them including digital induction courses.

Figure 64 Student Jamie (r) supporting the team during Countryfile filming

For more full information on the project's work with students see appendix 16.

Figure 65 Organisational learning and recommendations for the future



5.6. Learning about project design and partnership working

External evaluation specialists Heritage Insider were commissioned to support evaluation in the later stages of the project. The evaluators specifically developed, administered, and analysed a survey of partners for the project.

In total, 13 people out of 30 people contacted completed the survey and this section of the report comprises an independent summary of the key points from the responses with illustrative quotes provided for each. This is an abridged version of the report which can be seen in full in appendix 17.

1. Thinking about your involvement in the project, what are you most proud of?

The stakeholders found the partnership rewarding and it felt like a genuine partnership. Many were most proud of their newly gained ability to identify a range of the lower plants, and the enhanced understanding they've gained of their requirements. They now have the ability to save rare lichens which would otherwise have been lost. The project brought together a range of organisations with shared goals, some of whom hadn't worked together before. There was good sharing of knowledge and working links.

*'We were particularly proud of **developing a genuine partnership** with Plantlife and the volunteers and beneficiaries the project brought together. Plantlife brought the science, profile and outreach to the partnership, we brought the management experience, sites and local knowledge which created outcomes we were really proud of.'*

2. If the project hadn't happened, what (if anything) would be different now?

Without the project, stakeholders, volunteers and the public would have missed out on learning about the value and importance of temperate rainforest. There would be huge areas of temperate rainforest habitat left un-managed, which would have led to significant loss of key species. A continued lack of knowledge of lichens and bryophytes would have meant that future management decisions may have inadvertently negatively impacted these. The project has helped some partners to build a core of engaged, well-trained and enthusiastic volunteers.

*'**We now have a core of well-trained, enthusiastic volunteers who remain actively engaged with us in a wide range of woodland-related activities**. It would have been hard to have found the time or expertise in house to have achieved this ourselves.'*

3. What do you feel the project's greatest success is?

The amount of knowledge imparted, and interest generated, raising the profile of bryophytes and lichens and their importance within a temperate rainforest. Some excellent learning resources have been produced through the project, including the Rapid Woodland Assessment, ID guides and training resources are really accessible and useful assets that will remain valuable well beyond the project. The learning and resources will mean people will feel inspired and informed to take action to better look after the key species growing in temperate rainforest.

The project team's ability to take relative novices and upskill them and then to remain engaged with them to support them as they undertook surveys was invaluable and testament to the project team's skilled, friendly approach.

*'**Getting people engaged and involved** in understanding the value and importance of temperate rainforests and **inspiring people[s]** appreciation of them, including my own.'*

*'The development of all of the resources - **the Rapid Woodland Assessment, ID guides and training resources are really accessible and useful assets** that will remain valuable well beyond the project.'*

4. What do you feel has been most challenging?

The biggest challenge was Covid-19, but stakeholders felt the project team adapted to it well by pivoting the way the project was delivered. The pandemic made it difficult for some partners to maintain momentum. Some found the ID tricky, especially of closely related species. Some felt that more could have been made of the communication elements of the project and that an opportunity was missed to do more engagement with the general public.

'Covid meant we had to change how we delivered the project's message to our volunteers, but Rachel developed an excellent training resource which we were glad to help facilitate as online training content during lockdown.'

'More could have been made of the communication opportunities presented by the project. The project has done lots of engagement, but the majority has been with a very specific audience. Whilst important, not engaging with the general public more widely feels like a real missed opportunity.'

5. The project has helped to develop my/my organisation's understanding of temperate rainforest habitat

Average score: 4 out of 5

The partners felt the project has done a very good job of enhancing knowledge and strengthening understanding, and they feel able to make better informed decisions. Even those with an existing knowledge found the project deepened their understanding. Some would have given a higher score if more people in the right kinds of roles had been involved in the project, as they could have disseminated the information more widely. They feel the toolkits will be a valuable resource for inspiring and training new volunteers in the future.

*'**The project has increased our volunteers' and our support team's skills and understanding**, giving us the confidence to undertake rapid woodland assessments independently. It's also inspired many of that core group to engage further with other woodland initiatives we're involved with. **Going forward, we'll benefit from having access to the project's toolkits and training material to inspire and train new volunteers**.'*

*'It has certainly developed individuals understanding of temperate rainforest but **because of who was involved in the project (predominantly site managers) not people with more strategic roles, the wider organisational learning was limited**. This is my major reflection on the project - the relationship was held at the wrong level. The local knowledge and buy-in was essential but wider support could have amplified the impact. A learning for us internally but is probably applicable to other.'*

7. The project has helped to develop my/my organisation's understanding of the importance of temperate rainforest for lichens and bryophytes in particular

Average score: 4.2 out of 5

The project has helped to open volunteers' eyes to the beauty and importance of bryophytes and lichens. The sensitive needs of these plants were not previously a priority, but are now brought into consideration when making management decisions.

*'**This is now at the forefront of the organization in terms of managing woodlands in the SW and other places in the UK where you find this habitat**. Also my own understanding is directly shaping how we manage the woodlands I am responsible for and I am championing this across the National Trust.'*

*'**This certainly wasn't a priority for us before but has now become part of our standard baseline surveys locally**.'*

9. The project has helped me/my organisation to take positive action for temperate rainforest conservation.

Average 4 out of 5

The project helped partners to approach the topic from a different perspective. The learning has led to the rewriting of woodland management plans with more informed management decisions. Some partners have included their new learning in their nature recovery planning. A large amount of practical work has been undertaken to improve in temperate rainforest.

Some commented that they were not seeing private landowners fully engaging and changing their management plans yet.

*'**Inclusion in our nature recovery planning (2023-2030)**'*

*'**The emerging temperate rainforest projects and focused management of key lichen habitat would not have happened without this project**.'*

'We were able to secure surveys of additional sites through the project, enabling designation of more County Wildlife Sites. This non statutory designation raises their profile and protection within many forums.'

11. The project has helped refine how I/my organisation engages with the local community including volunteers and the public (e.g., through events programme or training).

Average 3.7 out of 5

The project helped to steer the partners' messaging around temperate rainforest when engaging with local communities and through social media. Volunteers are using their new knowledge when they're leading public walks and events. Outreach teams have noted stronger engagement. Even the more experienced partners who were already well equipped to engage communities have felt the tools and materials from the project have added to their toolkit.

*'**When engaging with the public through our program of guided walks, lichens and bryophytes are now incorporated into these, introducing people to these fascinating organisms**.'*

'Volunteers have undertaken training and are now using knowledge when they lead public walks and events.'

13. Do you feel that the project has helped to strengthen your/your organisation's professional network, for example, by connecting with organisations with similar aspirations? If yes, how?

The majority of partners felt that yes, the project has helped them to strengthen their professional network through making valuable new connections. For those already working with partner stakeholders, the project helped to deepen those relationships. Some reflected that the main networking benefit has been to engage more like likeminded private landowners.

*'We were working with the local stakeholders and partners in the main, but **this opportunity enabled us to deepen those relationships**. Use of steering groups/task and finish groups help to bring like-minded discussion, dialogue, something the project did well.'*

*'In relation to networking, **I think the most powerful aspect was pulling together like-minded landowners and enabling them to share experiences**. I suspect this was particularly valuable for private landowners. From an organisational perspective, this was probably less relevant as lots of the conservation organisations are already well connected.'*

14. Has the learning from the project been shared with anyone else within your organisation, or other organisations (for example local partners, peers via networks etc) or have you provided advice as a result?

All the partners have shared their learning at least internally, through training. As a result, temperate rainforest is now becoming a greater focus within partner organisations. Several have shared their learning with external parties including private woodland owners, which they hope has influenced their woodland management planning.

*'**We have been able to provide advice to landowners with temperate rainforests** within our area which has hopefully influenced their woodland management planning. We have also promoted / raised temperate rainforest through our farmer engagement events.'*

15. Are there other internal or external factors that have influenced your own and your organisation's practical and policy re: temperate rainforests during the lifetime of the project?

The effects of Ash dieback have created challenges for some partners and some of the project's aims. Adaptions to management prescriptions have also needed to be made due to climate change and future pests and diseases on temperate rainforests. The partners noted a growing interest and increased awareness in temperate rainforests and their importance, brought about in part by Guy Shrubsole's book. This increased awareness has meant that new funding opportunities have become available.

*'The project has **increased prioritisation of woodland management**, especially those important for lichens / bryophytes. This has allowed us to deliver projects with woodland management being delivered that is beneficial for lichens. Going forward the project outputs / outcomes will be built into the next review of the AONB Management Plan ensuring temperature rainforest priorities are accounted for.'*

'Absolutely - the growing interest in temperate rainforest brought about in part by Guy Shrubsole's book has really shone a spotlight on this habitat.'

'The increasing impacts of ash dieback, climate changes and future pests and diseases on temperate rainforests has meant some adaptions to management prescriptions.'

16. To what extent have you adapted or enhanced your species and habitat monitoring regime as a result of the project? If not do you plan to do so?

Most partners are carrying out monitoring of lichens and bryophytes to a greater extent than before the project: some had not monitored these species previously at all. The partners are putting plans in place to carry out future surveys, adapting their managements plans and securing funding. Some are carrying out translocation work, and others are still aspiring to build extra capacity so they can start regular monitoring.

*'**There was no monitoring before. Now a baseline lichen and bryophyte survey are currently underway on one site I manage**. I am securing funding for future surveys on the remainder of the temperate rainforest sites I manage (x2 more). I am also planning on doing some lichen translocation and setting up some trials with Plantlife to measure the success of this. This is all as a direct result of the project.'*

17. To what extent have you adapted your management plans for project sites (if relevant to your organisation) as a result of the project (including mitigating the impacts of ask dieback)? If not do you plan to do so?

The training has had a big impact on the partners' management plans. Some are writing new woodland plans for the areas of temperate rainforest they manage. Others have reviewed or adapted their management plans according to the project's outcomes. Their plans have seen a shift in focus towards increasing the quality of temperate rainforest habitat and mitigating Ash dieback.

*'**I will be writing new woodland plans for all the temperate rainforest I manage, taking into account the management guidance I learnt on training** and have access to as part of the project. We have reviewed our ash dieback tree safety management in light of this and have adapted and reduced the number of trees felled by more than 50%, based on guidance and advice. We also nationally have reviewed our guidance and tree safety management in relation mitigating the impact on lichens.*

*'**Massively, the management plan is now arguable totally focused around the objectives related to increasing the quality of temperate rainforest habitat and mitigating ash dieback**'*

18. Has the learning from the project also influenced management of any other sites your organisation owns or cares for?

The vast majority answered that yes, their learning has influenced the way they manage other sites they care for. The project's principles are more ingrained in their working and they're keeping the need to manage, protect, expand and connect temperate rainforest habitat across the sites they manage or advise on. Some are not there yet but are aspiring to be.

'More ingrained in our working.'

'Yes, all of the temperate rainforest habitat within our south west estate, including sites co managed with the national trust, and any land we give landowner advice on.'

19. What do you feel are the biggest barriers facing your organisation in delivering appropriate management of the temperate rainforest (including lichens and bryophytes) in your portfolio? Is there any support that would help?

The main barriers were around funding and time, especially the expense and capacity needed for surveying. A lack of baseline data is a barrier for some. Management of Ash dieback is also a challenge, as are differing priorities in woodland management: for example, managing for different species such as bats, dormice etc., opening up river corridors. Managing an entire ecosystem can sometimes be at odds with management for individual species.

'Influencing other landowners to take appropriate action. There remains huge uncertainty with the direction of incentives and support. Lobbying and campaigning would help. '

'Sometimes the focus on lichens and bryophytes feels at odds with our approach to woodland management. We focus upon restoring habitats and ecosystem processes which, can at times, be at odds with management for individual species. '

20. If you were to design the project again, what's the one top thing you would change?

Several of the partners felt the project worked very well and couldn't be improved upon. Some would have liked project to go on longer because conservation of threatened habitats can't react quickly enough within the project's timeframe. A few partners said that next time they would factor in more flexibility around costs so that, for example, excess management money could have been put towards volunteering or communications resources. Some said next time they would like more emphasis on improving translocation knowledge and techniques.

*'**I would make the funding pots less specific and more fluid**, which would have allowed a more dynamic use of excess or lack of funds in specific areas. E.g., excess management money could have been used for volunteering or comms resources.'*

***'Make it longer, as all NHLF projects suffer from a short sprint syndrome, when conservation of our threatened habitats and species can't react that quickly**. Projects start to create critical mass often in the final year of a term currently. Especially where there are considerable policy, legislative, and financial hurdles that need to be overcome during the process.'*

21. Finally, what do you feel is the project's most important legacy it is leaving behind?

The partners felt the greatest and most important legacy of the project is an increased public awareness and understanding of the value and importance of temperate rainforest. Teams of volunteers have been inspired, upskilled and mobilised, and there's a great set of resources to call on for future work. A sound foundation has been created from which to launch future temperate rainforest work. The project has brought together a network of landowners passionate about temperate rainforests and given them a plethora of resources to support their management. Now, temperate rainforests can be better protected.

'We have an inspired team of volunteers keen to use and develop skills learnt as part of this project. We've a great set of resources to call on, particularly the online toolkit.'

'It has created a very sound foundation from which to launch future temperate rainforest work within the region. It has created a network of landowners passionate about temperate rainforests and provided them a plethora of resources to support with their management.'

22. What do you feel the future role of Plantlife in temperate rainforest conservation should be?

Partners would like to see Plantlife continuing to promote the importance of temperate rainforest to the public and raise funds to help with the management of them. They see Plantlife as having a central role, the place to turn for advice and support, and the heart of a multi-agency temperate rainforest alliance in the Southwest. They feel that Plantlife have done an excellent job of developing and delivering this project and would like to see more initiatives like this project and would value the opportunity for more in-person events.

*'**They have done an excellent job of developing and delivering this project, bringing together their expertise on lower plants alongside broader woodland expertise of others**. All NGOs will have specific roles to play in the future partnerships that will be required to protect and enhance Atlantic woodland. The Woodland Trust also have aspirations around these habitats, so my own feelings are that this would make a dynamic duo, which could drive forward future initiatives together.'*

Plantlife recommendations for the future based on this report (compiled by project staff)

Recommendation 1 - **Continue to develop understanding of local partners' and stakeholders' priorities**	Recommendation 2 - **Engage in temperate rainforest advocacy and communications**
•Work with regional partners and other specialist organisations to understand and articulate/disseminate knowlege of the range of temperate rainforest species and their management requirements •Contribute to the development of a SW regional alliance for temperate rainforest alongside the Woodland Trust and others. •Facilitate a learning network of woodland owners and managers.	•Bring together advocacy, conservation and engagement activity in the region and UK-wide •Develop a temperate rainforest communication plan for Plantlife and share content with partners regionally.
Recommendation 3 - Engage with project partners at a more strategic level	Recommendation 4 - Make longer-term plans for the habitat and region
•Within future partnership projects to ensure deeper organisational buy-in that can be achieved through local or site-based relationships. •Pick up conversations with existing partners at higher levels where the focus has been on local relationships.	•Decide on regional priorities and a funding model to support this in the longer-term to avoid project churn, provide stability and continuity.

Figure 66 Recommendations for future partnership working

6. Project activity (What actually happened)

6.1. Introduction

In this section of the evaluation, we will highlight achievements or impacts for each programme. We will then use logic model tables to summarise activities within each programme. The logic model tables contain this information:

- the activities, targets and measures of success as described in the project's action plan at project development stage
- project outputs (what happened during the project)
- a summary of the impact of the activities and their legacy
- brief reflections on what went well/not so well.

We will then assess how well each programme achieved the intended outcomes for heritage, people, and communities, examine **what did and didn't work well and why**, and highlight **lessons learned** and make **recommendations for the future.**

Details of some activities are expanded upon through case studies, and others can be read about in the various appendices to this report.

6.2. The programmes

6.2.1. Programme 1: Learning about Atlantic woodlands and managing them better

Programme highlights – impact

Outcomes for heritage

Internationally important lichens and bryophytes safeguarded at 5 of the most important temperate rainforest sites in the region

- Shading measurably reduced at all sites through control of holly, beech ivy and other dense regeneration.
- Follow-up monitoring shows there have been increases in the size of lichen community niches, increases in lichen abundance and new occurrences of indicator species since management took place.
- 38 transplants of *Lobarion* community lichens have been successfully translocated from fallen/compromised ash trees to a mix of hazel, oak, sycamore and ash.

Learning from management and monitoring work benefiting rainforest across the region and beyond

- 3 demonstration events held at management sites, and 5 case studies published on Plantlife's new Rainforest Hub, showcasing the management and monitoring work to land managers across the UK.
- Follow-up with demonstration event attendees shows that an additional 162 hectares of rainforest are already benefiting from improved management as a result.
- Involvement with site monitoring and demonstration events has influenced the management of 2 private landowners with land within/adjoining rainforest SSSIs on Exmoor.

Improved understanding of the region's temperate rainforest with more data on habitat condition and species to inform future conservation

- 300 Rapid Rainforest Assessments (RRAs) carried out leading to better information on habitat condition, helping focus future conservation efforts and refine Important Plant Area boundaries.
- Species data from New Generation Botanists and RRA surveyors has led to 15 important new sites being identified
- Project partners have access to an interactive map and GIS layers to explore the full data set, enabling them to target future conservation efforts for rainforest.

Outcomes for people

Increase in professional expertise

- Training has resulted in better informed, more confident woodland managers.
- Regional network of woodland managers can now share information and skills.
- Better and more accessible learning and advice resources available through the Rainforest Hub.

Outcomes for communities

Increase in regional volunteer expertise

- Over 100 volunteers involved in site monitoring, benefiting from new knowledge and skills.
- Partners have teams of trained and motivated volunteers, and support packages (including training videos and survey apps) to continue to support long-term site monitoring.
- New Generation Botanist (NGB) trainees have helped to revitalise local special interest taxanomic groups, e.g. with the Cornwall Bryophyte Group resuming meeting after Covid-19 for survey days with NGBs.

Figure 67 Programme 1 highlights - outcomes for heritage, people, and communities

Programme 1 - Outcomes for heritage

Heritage will be better managed and in better condition

Emergency management was carried out at key conservation sites known to be habitat for important and threatened lichen and bryophyte communities. Citizen science monitoring was developed to assess management outcomes, ensuring long-term sustainability. Demonstration events were used to increase the reach of learning to more woodland managers and sites.

72.8 hectares (728,000 square metres) of woodland brought into better management directly through project.

162 hectares of woodland with management improved indirectly through training (based on 21 survey responses)

Online resources have been developed including an interactive woodland management toolkit (comprising our latest guidance on how to manage rainforest, the Rapid Rainforest Assessment and Managing the Rainforest in Action case studies) and introduction to lichen, bryophyte and fern identification courses to support ongoing learning and dissemination of information. These resources have been brought together in an online hub and support better management of temperate rainforest on a larger scale, beyond sites where practical conservation took place, and beyond the timeline of the project.

A detailed account of outcomes and impact from the management and monitoring is given in Section 4.2 and Appendix 1.

Heritage will be identified/recorded

The Rapid Rainforest Assessment tool was used to engage volunteers and land managers and gather data that enabled us to a) better understand the region's temperate rainforest and b) prioritise areas for future conservation efforts. Surveyors learned about the heritage and contributed important information about its condition. RRAs helped target more detailed species surveys carried out by New Generation Botanists, and targeted new sites for land owner engagement and management advice. Identification guides on lichens, bryophytes and ferns aimed at a range of audiences (from land managers to families), increase the numbers of people able to participate in recording.

A detailed account of outcomes and impact from the RRA work is given in Section 4.3.

Programme 1 - Outcomes for people

People will have learnt about heritage and developed new skills

Through training and resources land managers/owners and volunteers have learned about woodland monitoring, management and lichen, bryophyte and fern identification. Through the New Generation Botanist scheme the project delivered specialist ID training for volunteers and professionals across the region, to increase capacity for recording

"We have identified several important lichens on the site and are amending our woodland plan to include steps to improve the habitat for lichens and mitigate the impacts of our ash dieback works. I now understand the management and am confident (with my notes) to be able to better plan this management and convey this to others."

Site manager following training

the lichen and bryophyte heritage now and into the future. ID courses focussed on lichen and bryophyte 'indicator' species for the temperate rainforest habitat. The courses addressed the decline in specialist expertise and met the demand for accessible training opportunities for non-experts. **For more information on the New Generation Botanist programme, see the summary Appendix 15.**

People will have volunteered time

Volunteers have contributed significantly through the RRA, conservation site monitoring and New Generation Botanists scheme. Over 100 volunteers have contributed over 323 volunteer days to site monitoring and habitat management work, proving crucial to our understanding of how management has benefited lichen communities at the 5 sites where practical conservation has taken place. 300 RRA surveys were carried out, equating to 300 volunteer days in addition to training undertaken. This has greatly improved our understanding of rainforest condition and will inform future rainforest management in the south-west. New Generation Botanists have contributed 33 days of survey work, contributed important species records and identified 8 new sites of conservation importance.

People will have changed their attitudes and/or behaviour and have had an enjoyable experience

Woodland owners/land managers who have been involved with the longer-term conservation activity and with training programmes have incorporated management for lichens and bryophytes into management plans. People engaged with this aspect of the project have maintained contact with the project and reported a high level of enjoyment in their learning and engagement.

"I think the training programme was fantastic and has really opened my eyes to what a temperate rainforest is and the importance of it and its associated species. It has awakened in me a fascination for lichens and bryophytes which I hadn't anticipated or given a second thought to in the past."

Resilient Rainforest training participant

"I loved the course; it was so useful and relevant to my role. I'm so glad I was able to take part in this unique training opportunity and I'm thankful to have made lots of connections with knowledgeable people who are interested in conserving temperate rainforest."

Resilient Rainforest training participant

"An excellent training programme with lots of personal support. All the trainers had time to help with specific requests/questions. Good resources provided to support the programme."

Resilient Rainforest training participant

"Thank you for including me in the management course at Horner. It was a really great day involving all sorts of people together who would not normally be interested in lichens. With the publication and the meetings you have both really progressed the connection between lichens and management. Horner is a great example of long-term co-operation. You have now extended this to many different regions and made huge steps forward to increase knowledge and conservation of lichens."

Pat Wolseley, British Lichen Society

Programme 1 - Outcomes for communities
Negative environmental impacts will be reduced and your local area/community will be a better place to live, work or visit

Emergency management has helped prevent the loss of lichen and bryophyte species from five iconic sites on Exmoor and Dartmoor. Management work directly carried out through the project and by those trained through the project will reduce further biodiversity loss. One example of where this has happened is at Lydford Gorge where increased understanding of the biodiversity value of the site for lichens has led to improved management which will benefit the whole community.

"I'm taking bryophytes and lichens into account when carrying out woodland work. When thinning woodland, I used to look at the health and growing habit of the trees when deciding which to remove and now I'm also taking into account the bryophyte and lichen communities living on and around each tree. I also feel a lot more able to engage with people and encourage visitors to the woodland to look after the bryophytes."

Site manager following training

"I have recently highlighted to a landowner the importance of identifying lichen trees of interest and their continued management and protection, and I my role this is something I will continue. This training will allow me to discuss confidently the issues around lichen management with forestry agents, landowners and stakeholders, something which I was not able to do previously."

Woodland advisor following training

Heightened awareness and interest amongst the land management community has led to movement towards a regional alliance. Enhanced biodiversity and improved access to information though trained and better-informed land managers, interpretation, volunteers and learning and engagement resources has made woodlands more enjoyable places to visit. Resources contained within the online Rainforest Hub can influence management across a larger area and outside of the project lifetime.

> *"In relation to networking, I think the most powerful aspect was pulling together like-minded landowners and enabling them to share experiences. I suspect this was particularly valuable for private landowners."*
>
> Project partner in Heritage Insider survey

Your organisation will be more resilient: Plantlife, the partnership, wider land management organisations and individuals have developed stronger partnerships in the region. Plantlife is seen by many as expert in providing management advice on temperate rainforest and in engaging people through citizen science and monitoring to improve understanding of plant conservation. A potential new alliance of organisations is being explored through a process led by the Woodland Trust which is capitalising on the interest built through this project and the further interest generated through the book 'Lost Rainforests of Britain' by Guy Shrubsole.

Figure 68 Resilient rainforest training Exmoor (left) Dartmoor (right)

Lessons learned and recommendations

This is included in detail in Section 5.2 (learning about woodland management and monitoring), Section 5.3 Learning about developing skills within the land management community) and Section 5.4 (Learning about taxonomic skills development).

Programme activities

Programme 1: Learning about Atlantic woodlands and managing them better				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
Practical woodland conservation activity - at 6 sites on Exmoor and 1 site on Dartmoor in core IPA areas. Management will address identified threats to internationally important lichen and bryophyte communities. Monitoring pre-management and post management carried out by trained volunteers using bespoke methodologies.	6 sites with improved habitat conditions and monitoring methodologies in place to evaluation impacts. 50 trained volunteers carrying out site monitoring. All related management, maintenance and monitoring activities incorporated into site management plans for 10 years post project.	**5** of the originally selected sites have benefitted from practical management, have monitoring methodologies, and are equipped with training materials and resources to carry out post-project monitoring. **1** additional site, Lydford Gorge, has benefited, since being discovered as an internationally important site for lichens. **50** volunteers have been trained to carry out site monitoring. More than **30** sessions of volunteer training and monitoring took place with more than **226** volunteer days of activity. Monitoring packs handed over to partners to support their longer-term commitment (see training video for East Dartmoor NNR as an example of support).	6 sites with improved condition for lichens and bryophytes. Partners have knowledge to assess sites and make evidence-based management decisions at these and other sites. Partners understand benefits/impact of monitoring and are equipped to continue at these sites and beyond. Partners have committed to 10 years post-project monitoring. Volunteers can support local monitoring efforts.	One project at Doctor's Wood did not get off the ground with the National Trust at West Exmoor and work at Watersmeet with the same team took place in year one only. NLHF were supportive in using the budget at other National Trust sites including expanding holly management work within Horner and new work and surveys at Lydford Gorge.
Demonstration events at 4 practical conservation sites - learning events using practical work as case studies with a different focus at each event.	Endorsement of case studies by industry leaders evidenced by dissemination to their membership through websites and publications 100 hits on case studies	5 online case studies have been written in collaboration with partners. **3** demonstration events co-created by project partners took place as part of a comprehensive training	Case studies have been disseminated nationally via the Rainforest Hub and will be curated and promoted by Plantlife to relevant audiences post project. Further case studies have been developed by the wider Plantlife temperate	Good take up of demonstration events. One event organised independently by project partner demonstrating commitment.

Programme 1: Learning about Atlantic woodlands and managing them better				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
	90 participants attending events. Feedback from participants on changes to their own management	programme 'Resilient Rainforest'. 1 further demo event was delivered by a partner for the Countryside managers Association. **64** participants at demonstration events.	rainforest team to represent work in Scotland and Wales. Feedback from participants indicates action already taken and an intention to change management for lichens and bryophytes.	Case studies showcase partnership, learning process, best practice and working and how to tackle common management issues.
Rapid woodland assessment (RWA): training for volunteers and roll-out of survey across the region to better understand the state of the region's rainforest. Volunteers and woodland owners survey woodlands and submit survey results. Additional specialist survey work is targeted at key sites identified from the RWA, and support designation of County Wildlife Sites. Supports mapping of species and habitat across the region. Updated project maps produced.	12 sessions delivered in years 1 and 2. 96 people attend training. 150 woodlands surveyed and results submitted online. RWA survey form and guidance notes.	RWA survey form and guidance notes developed for project. **27** volunteer RWA training sessions delivered to **454** volunteers plus **37** staff from partner organisations supporting the training. This includes several community events which promoted the project and highlighted the RWA. **5** additional RWA training sessions for land managers delivered to **58** individuals. Over **300** RWA surveys submitted online, and a total of **273** different woodlands surveyed, equating to at least **300** days of volunteer time taking into account preparation, travel, and data submission.	RWA survey evaluated and redeveloped by wider Plantlife team in late stages of the project so that it can be used by woodland managers across the temperate rainforest zone in all countries and regions of the UK. Rebranded as the Rapid Rainforest Assessment (RRA) tool, it is available via the Rainforest lichens and bryophytes toolkit and the Plantlife Rainforest Hub. An app is in development to support land managers to interpret results and for Plantlife to gather more data on the state of the UK's temperate rainforest. This tool is being viewed as a critical aspect of Plantlife's temperate rainforest work going forward and the data will inform rainforest conservation activity across the UK.	Internal take-up of the Rapid Rainforest Assessment has streamlined Plantlife's offer to land managers making a stronger and more coherent case for conservation. Virtual support/catch up sessions for volunteers were a new approach, and effective. Survey returns exceed the target by more than double, however some individuals carried out multiple surveys meaning that others did not carry out/submit any. More needs to be done to understand why the training, which was so positively received, did not always translate to action on the ground. However, it is worth noting that this is

Programme 1: Learning about Atlantic woodlands and managing them better				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
		Additional specialist survey work through DBRC has resulted in 5 new County Wildlife Site designations for 'Upland Oakwood' interest. Maps and a report of key results developed using Storymap tool showing surveyed woodland & indicator species.	Storymap is available to land managers and others via the Rainforest Hub to inform management planning.	similar to other projects (10% return rate is common for citizen science projects, e.g., OPAL).
New Generation Botanist (NGB) foundation & advanced learning modules to train up a new cohort of professionals and volunteers with specialist knowledge in temperate rainforest lichen and bryophyte ID and recording. 8 Foundation Courses to be delivered (4 lichen courses split between Exmoor and Dartmoor; 4 bryophyte courses split between Devon and Cornwall). 4 Advanced Courses to be delivered (2 lichen courses split between Exmoor and Dartmoor; 2 bryophyte courses split between Devon and Cornwall).	**Foundation courses** (x8) - 15 participants per module = 120 in total. **Advanced** courses (x4) - 12 participants per course = 48 in total. 16 indicator species surveys carried out by NGBs. New survey records for 10 woodlands within 1km of the IPA core with currently under-recorded lichen and bryophyte interest.	**5** Foundation courses delivered with **77** participants (due to impact of Covid-19 lockdowns). **3 advanced courses delivered (1 lichen and 2 bryophytes)** to **24** people. To address the loss of lichen NGB training, additional Lichen survey training was developed to help with surveys at sites on Exmoor where practical conservation was carried out. This was delivered to **20** people. Details of the programme can be found in appendix 15. 21 sites surveyed over 53 survey days (more than one surveyor per site) by NGB/lichen surveyors. 46 new records of indicator species.	Motivated and skilled volunteers can carry out surveys where needed. New records of species have enhanced regional datasets. BLS and BBS have new members because of the project.	Potential shown in this model in that new species records were made, new sites surveyed. Lack of post-project activity and network risks underutilising and/or losing these skills but where NGBs have joined up with BLS and BBS and have become active in their local lichen and bryophyte groups, there is potential for skills to be strengthened and continue to be used, particularly as the project has improved partnership working between BLS and Exmoor National Park/National Trust, and between the Devon/Cornwall Bryophyte Groups and local landowners.

Programme 1: Learning about Atlantic woodlands and managing them better				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
				See section 6.6 Learning about taxonomic skills development, for more information.
Tree canopy exploration activity inc. tree climbing and survey in canopy	2 days of tree climbing 20 participants	Activity did not take place due to COVID-19 disruption.	N/A	N/A
Community laboratories in key locations established comprising of microscopes, other scientific equipment, key texts and ID resources and an herbarium with support from trained volunteers.	3 community laboratories in place by end year 1 6 x Lab volunteers trained by end year 1. Labs used by 20 people per year = 60 people	**3** community labs established. Basic training provided to staff and a support and training pack provided for staff, volunteers, and the public.	Labs sited at the Exmoor Society, Poole Farm Education Centre (Plymouth City Council) and Kipscombe Farm Education Centre (National Trust). Agreements in place with all lab owners to make the resources available to the public to further their learning about temperate rainforest lichens and bryophytes and wider aspects of natural history.	There was not enough time within the project to roll this out effectively. Community labs now exist and training and resources were provided but we can't gauge at this time how well publicised they are, whether they are used, or whether they have been proven to be needed.
Professional training • Introduction to lower plant identification; lichens, bryophytes, ferns • Introduction to woodland management • Advanced woodland management • Rapid Woodland Assessment survey	34 sessions delivered over 3 years. At least 300 attendances with 100-150 individual participants.	**39 sessions with 982 attendances and over 400 individual participants.** **6** introductory lichen/bryophyte/fern ID sessions to **99** people. **4** advanced ID sessions to **49** people. **2** x 2-part rainforest management training courses incorporating RWA and monitoring to **45** people.	Evidence of improved confidence and skills amongst large and diverse audience/organisations leading to additional and improved conservation and engagement action.	High levels of engagement, commitment, and evidence of learning. Regional momentum created and organisational buy-in from new organisations outside of the partnership. Follow-up support was not planned into the project. This could have cemented

Programme 1: Learning about Atlantic woodlands and managing them better				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
• Developing monitoring schemes for lower plants • Supporting professionals to deliver lower plant interpretation using Branching Out resources		**5** advanced woodland management sessions (inc. demo events and ash dieback training) to **79** people. **1** webinar for professionals (UK wide) on ash dieback management to **175** people. **1** webinar on the role of mapping in conservation using this project as an example delivered to **300** participants. **19** educator training sessions were delivered to **200** individuals (see Future Scientists programme).		and enabled better monitoring of impact.
Support for community woodland groups at a minimum of 3 locations through supporting and facilitating events, access to training and resources	3 community woodland groups supported. At least 15 people from woodland groups attending training. At least 3 woodland events taking place supported by the project with 60 people attending.	3 community woodland groups engaged early in the project. Group members were invited to all relevant training and some attending training (RWA/species ID) during the project. Forum 21 of Woodcombe Wood supported delivery of 2 family learning programmes, comprising 6 events each.	Engagement with community woodland groups had limited impact. Event delivery limited by factors including COVID-19 which interrupted family events programme and access issues for local families reliant on public transport.	Community woodland groups were difficult to engage with beyond the project development stage. Representatives did attend training but there was no appetite to engage any more fully during the project.
How to notes resource. A woodland management guide containing 'bite-sized' and accessible information for non-specialists involved in managing woodland.	Partner organisation endorsement and dissemination 400 hard copies of resource distributed.	Development of a comprehensive online woodland manager's toolkit on managing temperate rainforest for lichens and bryophytes incorporating case studies, guidance, and Rapid Woodland Assessment survey resources (guidance, app	Impact of this is not known at this point (disseminated in later stage of the project) however a survey of users of the previous management handbook informed development and elements were co-created with stakeholders and so their needs/interests	Bringing together learning over last decade within Plantlife, drawing together approaches and understanding across Plantlife so we are all promoting one tool and

Programme 1: Learning about Atlantic woodlands and managing them better				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
Resource to be available in hard copy and online for download.	200 copies of resource downloaded	and survey form). Hard/PDF copies were not produced for reasons of efficacy and download data is not available.	were taken into account. The interactive approach to case studies has been adopted by others within Plantlife as an example of good practice.	coherent, unified advice and guidance. Not enough time to assess the impact of the resource within the project lifetime.
Identification guides Fern identification guide Reprint of existing lichen/bryophyte ID guides	1 fern ID guide developed. ID guides disseminated through training sessions in Programme 1 and public engagement in Programme 3	Fern identification guide produced for use within project and **1250** copies disseminated during fern ID and other training sessions. **2500** lichen and **1250** bryophyte ID guides updated, reprinted and distributed via training. See appendices 6-9 for PDFs of ID guides.	ID guide further adapted in final year of project to incorporate woodland ferns from outside of SW England so that it can be used nationally alongside the online management toolkit. Also translated into Welsh. Fern and lichen/bryophyte identification incorporated into the practice of educators and ID guides used to support this.	Fern ID guide was well received by all users. It proved a gateway to what are perceived to be more challenging groups (lichens/bryophytes) and demonstrated demand for learning about this group of plants – leading to online ID course.
Online training videos to support the use of learning resources and additional support for those involved in adult learning and family learning activities. Videos hosted by You Tube and Facebook and shared via Facebook and project webpage	300 hits on You Tube Facebook likes and shares	**68** videos produced to support the learning of educators, land managers and others. They had **11,914** views. **7** recorded webinars (national audiences) had **3638** views. **2** videos supported campaigns with **766** views. **14** short training videos had **1339** views. A series of **6** videos on wellbeing supporting World Mental Health Day had 6147 views.	Hosted on YouTube videos were used to consolidate learning in the field and replace face to face/field-based sessions when these were not possible. Many videos have been incorporated into products which are available post-project including self-led learning resources e.g., introduction to lichen identification and introduction to fern identification. **25** short videos were produced to support ID and volunteer training and **16** more to support case studies.	Project team have learned a lot about making videos including filming and editing. Quality has improved over the course of the project. The potential in using video in engagement is being realised across Plantlife and training and support for staff is beginning to come on board. This project has been pioneering (within PL) in use of video for learning and development.

Figure 69 Programme 1 Logic model table

6.2.2. Programme 2: Future Scientists

Programme highlights – impact

Outcomes for heritage

Improved heritage learning resources available

- How Healthy is Your Rainforest? survey and educator packs sent to 100 schools and outdoor centres and 350 families

Outcomes for people

Increase in professional expertise

- Teacher and educator training has supported 185 teachers and outdoor practitioners in developing skills in delivering science investigations on temperate rainforest.

Outcomes for communities

Children are better connected with their local natural heritage

- 246 children took part in learing activities within their local temperate rainforest, learning about the importance of the habitat for plants and fungi, conservation issues, human and other impacts
- 350 families (1183 children based on parent survey) had access to rainforest learning during home schooling due to national lockdowns.

Figure 70 Programme 2 highlights - outcomes for heritage, people, and communities

Programme 2 - Outcomes for heritage

Heritage will be better managed

School groups carried out a limited range of survey and practical conservation activities that had minor impacts on woodland condition at a small number of sites.

> *"You provided our children with such a powerful and lasting learning opportunity, with a chance to contribute to real data collection."*
>
> Josh Wedderkop, Crowcombe & Stogumber School

Programme 2 - Outcomes for people

People will have learnt about heritage and developed new skills

Children and young people who took part in the Future Scientists scheme undoubtably learned about temperate rainforest, its conservation issues and management. The 4 schools who started their programmes pre-Covid all had children who attended more than one session in the woods who were beginning to develop a deeper understanding than a one-off session would offer.

From feedback from some of the 200 educators trained through 19 sessions, we know that they have used knowledge gained in training and resources to deliver heritage learning to children and adults. For a more in-depth look at how the project has influenced the practice of educators see section 7.3 A legacy of skills, knowledge, confidence amongst educators and outdoor leaders leading to positive outcomes for communities.

Programme 2 - Outcomes for communities
Negative environmental impacts will be reduced.

Practical site management undertaken by the children was limited and will have little effect on overall rainforest condition.

More people and a wider range of people will have engaged with heritage

246 children that the project's community scientist worked with directly had new opportunities to engage with rainforest heritage. Through training 185 professionals, many other children and young people have had new rainforest learning opportunities.

Figure 71 Programme 2 lessons learned and recommendations

What worked well	Creating 'real' scientific research programmes through citizen science 'How Healthy is Your Rainforest' and bespoke projects appealed to teachers and land managers so encourage take-up and committment in early project.
What didn't work well	Delivery activity and the whole programme was derailed by impacts of Covid during and post lockdowns while schools recovered from the impacts.
Future recommendations	Consider the drawing together of adult and child citizen science activity as a model for future projects. This concept was not tested due to the curtailment of activity. It would be incredibly interesting to see how it panned out.

Read more about the Future Scientists programme in appendix 18.

Figure 72 Children carrying out the survey with Alison Smith (left)

Figure 73 Somerset outdoor educators learn about How Healthy is Your Rainforest?

Figure 74 Programme 2 Logic model table

Programme 2: Future Scientists				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
Long-term citizen science programme for 10 schools/outdoor centres in all project areas. Children will carry out a range of meaningful scientific investigations and woodland management activities that inform management planning and contribute to our understanding of this habitat and contribute to a conference where their learning is shared.	10 schools or centres engaged. 300 children take part in the scheme. 5 schools participate in conference.	**7** schools engaged (including Wave Rangers) with delivery taking place with **5**. **246** children took part in the scheme. Conference did not happen due activity being curtailed by to COVID-19. Read more about this programme in appendix 18.	Children who were involved had an enjoyable experience and learned about their local natural heritage. Teachers and other educators have access to a high-quality citizen science resource.	Project seriously affected by COVID-19. School closures, furlough of staff and school priorities meant delivery was not possible once school reopened. The resources were well received by all those who saw them.
Teacher/outdoor practitioner self-led woodland learning and citizen science resource for Key Stages 1,2,3 supported by online instructional videos.	At least 3500 children participating in Future Scientist activities. 150 schools and outdoor centres request resource (hard copy and online)	Survey and support packs sent to **100** schools. **350** packs sent to families home schooling during COVID-19 restrictions. Estimated **1183** home schooled children participating (based on parent survey)	Schools and families have access to high quality woodland learning resources.	All copies of this resource were distributed within the project despite school delivery not being possible. The project team was agile and sought to make use of the investment in the resource by distributing it to home schooling families during the pandemic.
Training sessions for teachers and outdoor practitioners on how to use self-led 'Future Scientist' resources and learning about woodlands that will support the resource. Includes the provision of online training videos.	9 training sessions delivered. 120 teachers and outdoor practitioners trained in resource use. 100 hits on online support videos Estimated impact of 2000 beneficiaries	**19** training sessions delivered in person (**12**) and online (**5**). Further sessions were cancelled due to COVID-19. **200** teachers and outdoor practitioners trained. **5** 'How Healthy is your Rainforest' support videos on YouTube have been viewed **696** times	More educators have knowledge about temperate rainforest heritage. Resources are available to support teachers and educators to deliver learning around the habitat.	Training around the resource included wider information on temperate rainforest and was well received. Providing this resource as a tool was popular but did not translate into survey results.

6.2.3. Programme 3: Branching out

Programme highlights – impact

Outcomes for heritage

Improved and ongoing opportunities for learning about heritage

3 new self-led learning courses, 4 identification guides and 3 family guides enable communities, educators and site managers to learn about, celebrate and share temperate rainforest heritage.

An increased range of opportunities to engage with temperate rainforest included a walks programme, public events, family programmes, forest bathing and digital volunteering.

Outcomes for people

People have developed knowledge and skills

Teachers, other educators, volunteers, rangers and site managers have benefitted from training and are passing on their enthusiasm and knowledge to local communities.

Local people have developed skills and had new experiences through a broad engagement programme.

Outcomes for communities

More opportunities for connecting with temperate rainforest heritage

Over 3000 people experienced direct engagement with temperate rainforest heritage with over 6000* more engaged indirectly through video views and use of self-led resources.

*estimate based on distribution of 4000 Branching Out guides, 6000 Uncover the rainforests of the south west guides and 1870 video views

Figure 75 Programme 3 highlights - outcomes for heritage, people, and communities

Programme 3 - Outcomes for heritage

Heritage will be better interpreted and explained

A regional resource of 'activity leaders' has been developed who are able to interpret temperate rainforest and communicate confidently about this natural heritage with a wide range of audiences.

The high-quality digital and printed resources produced, including online courses, ID guides and family guides have provided accessible interpretation during the project lifetime and continue to be accessible via the Rainforest Hub into the future.

"I will most certainly use my newly acquired knowledge as an Educational Guide for the DNPA and also with my adult walks. Also, I am asked from time to time to take my daughter's Home Ed group out for walks etc, so this would make for an excellent theme for a walk. To that end I would love some more of your resources, both Fern ID Guide and Discover Forest Ferns."

Participant on fern ID course

"I just had a look at the Ferns online course, how amazing that you make these available for people, really informative and easy to digest, love the illustrations and the level that it is aimed at. Just brilliant, thank you!"

Participant on online fern identification course

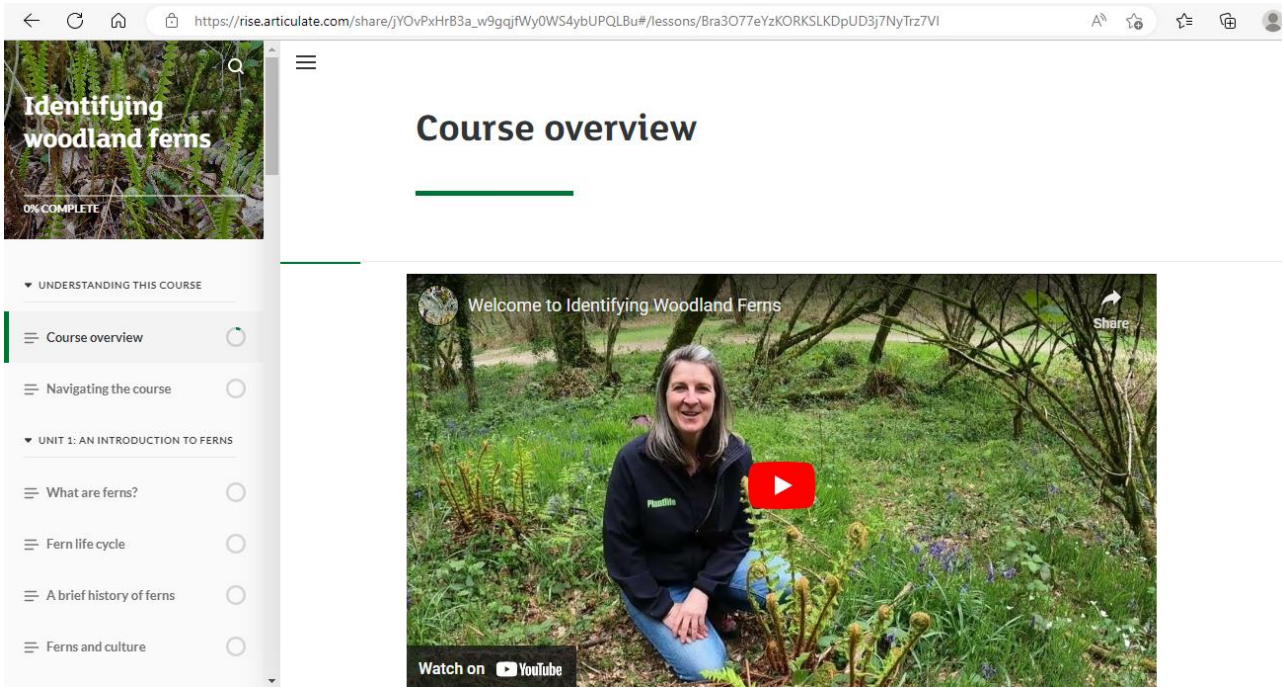


Figure 76 Screenshot of online, self-led fern identification course

Programme 3 - Outcomes for people

People will have learnt about heritage: More people will have engaged in learning about temperate rainforest and its lichens, bryophytes and ferns through walks and events. Informative resources support ongoing learning.

People will have developed new skills: Staff and volunteers within the partnership have developed new skills in temperate rainforest interpretation and activity delivery through training. People have developed introductory level identification skills through the walks programme and online learning resources provide the opportunity for self-led skills development beyond the project lifetime.

People will have had an enjoyable experience: Through exploration, adventures and play, people have spent time enjoying temperate rainforest and all they have to offer.

The initial Saplings parent/carer and child sessions run in partnership with Woodcombe Community Woodland in Minehead and Exmoor National Park were successful in engaging families from Minehead who were new audiences. They were engaged through an ENPA family project which provided funding for family transport, while the project provided the activities. Subsequent sessions did not provide transport and families came by car. This changed the demographic but provided opportunities for families to socialise while engaging in free nature-based activities with other families, combatting loneliness and isolation.

14 sessions took place over **3** programmes with a total of **73** adult attendances and **72** child attendances. A further babywearing walk took place with **9** adults and **10** children.

"Thank you, Lucy and Rachel, for all your hard work in running little saplings. We have all really enjoyed coming to the woods with you. The boys have especially enjoyed playing hide and seek, and the hot chocolate went down well too.
It has made me realise that there are woods within walking distance from town, as I had never been up Woodcombe woods before. We will definitely be going there on our own, especially in the school holidays when we can show the older children what we have learnt."

Rachel, Childminder

Figure 77 Saplings enjoying the woodlands in Woodcombe Community Woodland

Programme 3 - Outcomes for communities

Your local area/community will be a better place to live, work or visit:

During the project there was an increased range of activities on offer in the region, meaning more people were able to engage, making the community a better place to live. Activities for young people, families and older people helped to reduce isolation as more people engaged with the heritage in social scenarios. Activities such as Forest Bathing, learning walks, Saplings family sessions and volunteering enabled people to experience woodlands differently and gain new perspectives and insight. Here we take a closer look at Forest Bathing, the MED Theatre film production and the virtual woodland walks volunteering.

Forest Bathing

"Forest Bathing is part of an increasingly diverse range of offers to increase access (intellectual, physical, emotional and spiritual) to the special qualities of the national park - demonstrating that many routes are possible to improve mental and physical wellbeing."

Orlando Rutter, Head of Education, Dartmoor National Park

Figure 78 Orlando Rutter, Head of Education Dartmoor National Park during Forest Bathing training

8 experienced outdoor leaders benefitted from training in the delivery of Forest bathing sessions in order to increase the opportunities for people to use temperate rainforests for wellbeing. The premise was that by training local people already using the woods for learning and development, that the skills would be retained in the region. COVID-19 had an impact on the ambitious engagement targets for this activity as did changes in staffing meaning that people who had undertaken training were no longer able to contribute in the way planned. However, there were additional opportunities created for communities and all of those who participated in the training, reported that it informed their practice.

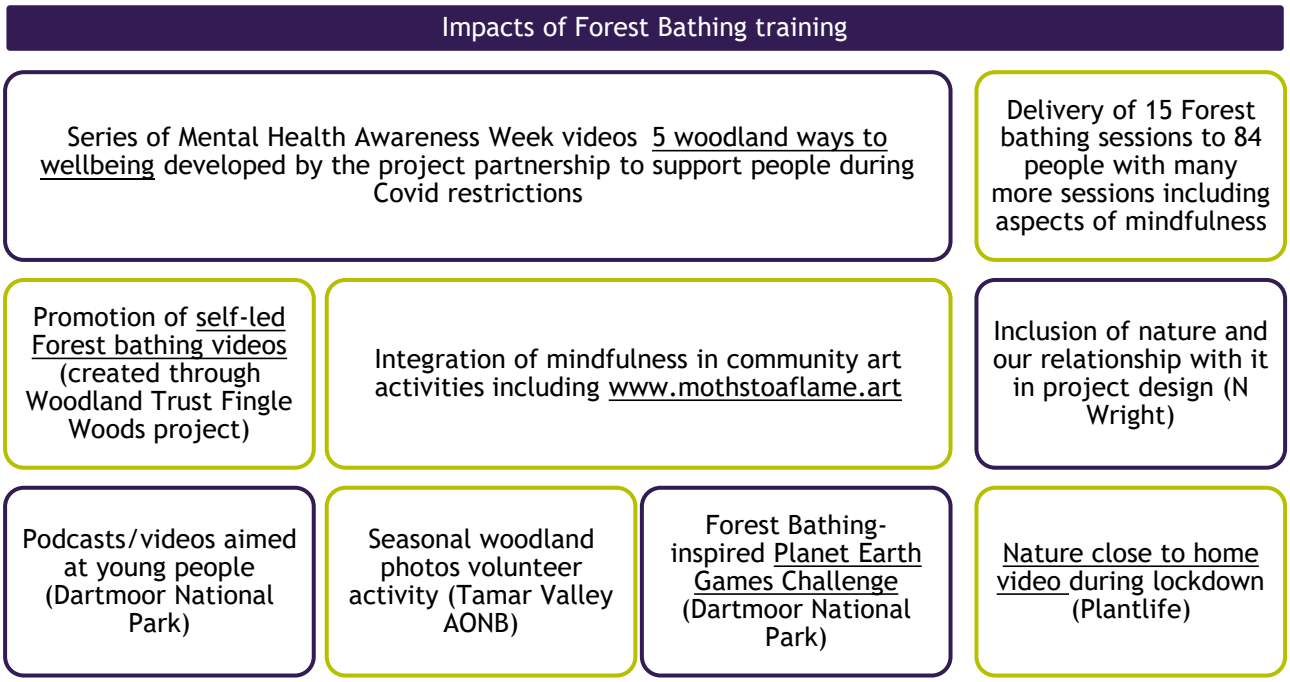


Figure 79 Impacts of Forest Bathing training

Engaging with the recovery community

Three of those trained including Rachel Jones, Project Manager (Plantlife), Orlando Rutter, Head of Engagement (Dartmoor National Park) and Naomi Wright (Freelance educator and artist) worked with Somerset and Devon recovery communities through NHS 'Recovery Colleges', delivering in-person and online Forest bathing sessions. Somerset Recovery College describe how recovery education is delivered:

'Co-production is a key value and defining principle of Recovery Education, this means that our courses are designed and delivered by at least two people, one of whom has to have lived experience of mental ill health and by either a mental health professional or expert in the topic for the course.' (Somerset Recovery College website.)

Plantlife delivered 6 sessions with Somerset Recovery College, a further 4 planned sessions were cancelled due to changing Covid restrictions. With the turmoil and uncertainty of Covid, the Forest bathing sessions offered participants the opportunity to do something different, peaceful, and mindful with like-minded people.

Somerset Recovery College made two videos to review and promote these sessions which can be viewed here:

Forest Bathing December

Shinrin Yoku - Recovery College

Figure 80 Links to Somerset Recovery College Forest Bathing videos

Participants on these sessions said:

"I need this today".

"It's shown me how much there is to see if you just slow down".

"I don't want to go home".

"A squirrel came and sat near to me and just watched me watching it. It was incredible".

"An excellent event made all the better with the rain. (name redacted) was so pleased with himself driving home."

Lee, peer support worker, Somerset Recovery College

"Hi Rachel

Just a note to say, "Thank you so much for today". The planning, delivery and impact were outstanding. I really enjoyed the day."

Tim Yeandle, Somerset Recovery College Lead

Course leaders said:

More people and a wider range of people will have engaged with heritage: Harder to reach and non-traditional audiences were targeted for engagement e.g., a youth theatre group and families living in rural locations. Resources such as online courses, videos and virtual walks described below, enabled people who cannot access woodland to benefit from the project.

MED Theatre

"You sort of get used to what you see all the time and sort of take it for granted."

Young person, MED Theatre

"Temperate rainforest - it is a useful labelling, because the temptation is to think that important forests grow elsewhere and not in this country."

Mark Beeson, Artistic Director MED Theatre

"It made me feel the need to respect the woods a bit more, learning about them, and the important things in them."

Young person, MED Theatre

13 young people and MED Theatre staff were involved in the production of a film 'The Wood' which was inspired by the temperate rainforest on Dartmoor, close to where the theatre group is based, and the young people live. They took part in an experience day, led by project staff then wrote, filmed and edited a film which focussed on competition for land-use using temperate rainforest as inspiration. They were provided support from Natural England staff and interns. The film was celebrated at an event on Dartmoor at East Dartmoor National Nature Reserve.

Figure 81 Filming 'The Wood' on Dartmoor

It was hoped that the film would be show in community cinemas but this did not come to fruition. It was shared as part of the package of materials for schools taking part in Future Scientists and had a total of **289 views.** The young people involved made a short documentary 'Making The Wood' which shows the process they undertook, and discussed their experience in this video Evaluation of The Wood - YouTube.

Virtual woodland walks

An interactive Storymap (screenshot Figure 82 below) hosts the **36** virtual woodland walks produced by **9** volunteers. These were promoted throughout lockdown periods as a way of experiencing nature from home. They had **1870** views. Volunteers were not in Plantlife's usual demographic, tending to be younger, in the 20-45 age range. Volunteers reported it to be positive with it leading to other volunteering opportunities or an increased sense of personal wellbeing and personal development. Some examples are below:

"I really enjoyed making them, they gave even more of a purpose to those walks, knowing that even just one more person might be enjoying them too! It's always great to be able to share an experience, especially in the lovely woodlands we have in the south west." **Philippa**

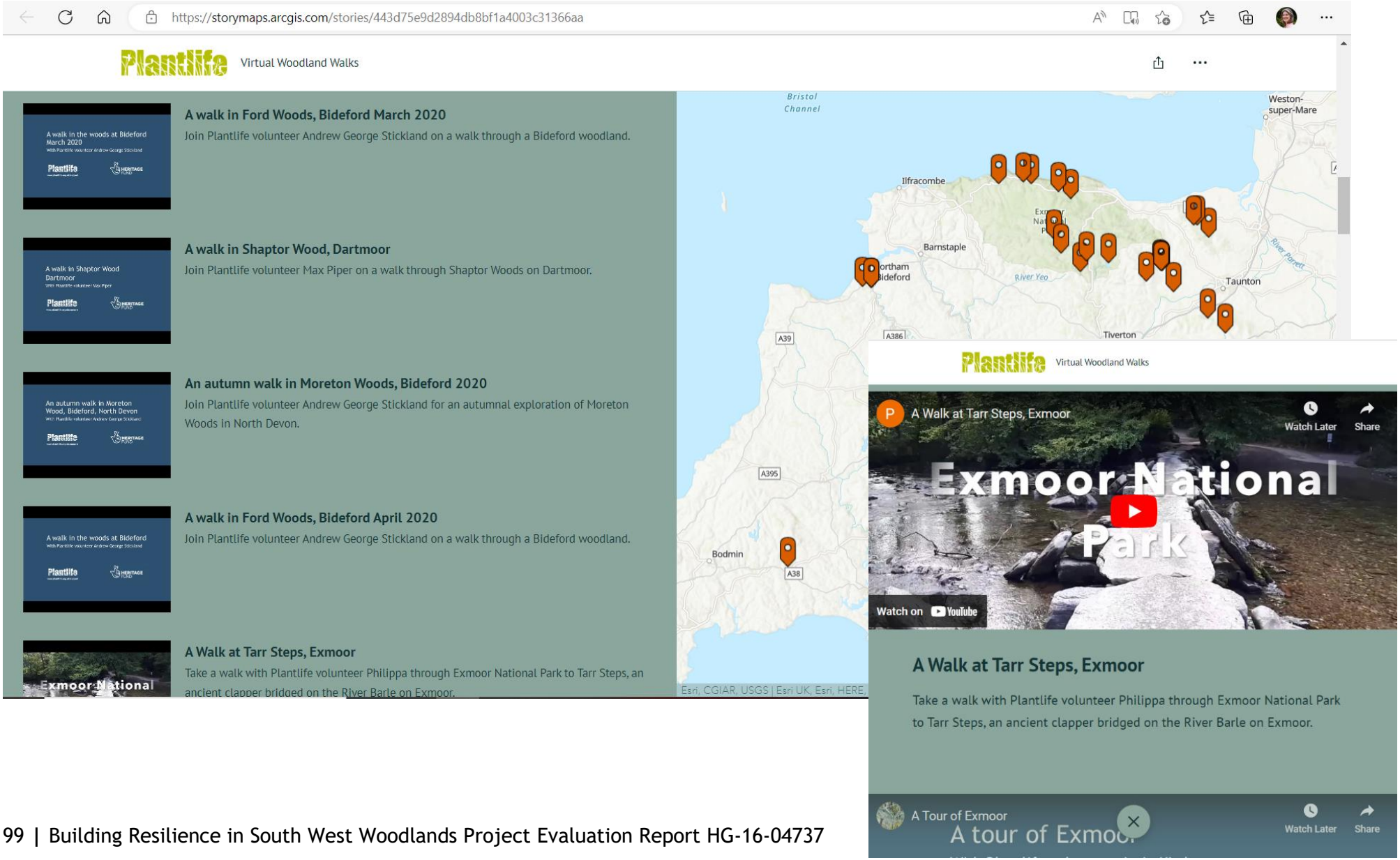
"I had always wanted to do some volunteering, and Plantlife was the most suitable option at the time, as I always went walking in woodlands on Dartmoor. I used to record my own YouTube videos so I had some knowledge of filming and wanted to spread my passion to others, particularly those who are unable to enjoy being there. I have since expanded my volunteering portfolio by working with Dartmoor Youth Rangers. I have also written a book, which includes a number of tors within Shaptor Wood that I filmed; East Dartmoor's Lesser-Known Tors and Rocks." **Max**

"Having suffered from mental health issues when an agricultural lecturer, one of my daughters gave me the link to Plantlife International and to you Rachel, knowing how I loved to talk about woodland ecology. I loved being able to share my passion and knowledge of basic woodland ecology on the videos (all be they were amateur) they were well received. My mental health was much improved in sharing this way." **Andy**

Organisational learning - this has been extremely interesting for Plantlife to deliver as it was initially outside of our experience and so presented a range of challenges around guidance for volunteers, platform to host videos on, and organisational reputation – all previous video outputs having been professionally produced and for broad audiences. The organisation has come to understand during the project that casual film making for the purposes of engaging with more and a wider range of people, is part of many staff and volunteer roles and that the process for many volunteers is of equal importance to the output, as demonstrated by the quotes above.

Recommendations for the future – identify areas where this kind of engagement could reap benefits e.g. meadows, reserves. Invest in training for film makers, provide opportunities for skill sharing and identify clear outlets for the content created.

Figure 82 Virtual woodland walks Storymap



What worked well	There has been a significant increase in awareness of the habitat. The project team have worked hard to embed capacity within local partners to enable a raised profile and engagement with temperate rainforest to continue locally. Providing progression and a range of activity led to deeper understanding and stronger outcomes for heritage and communities and the emergence of a number of community champions who have incorporated temperate rainforest into their work, recreation and volunteering.
What didn't work well	Visiteering as a concept for this project did not work due to lack of ideas/buy in from partners and an underestimation of the amount of time investment needed to run this properly at project development stage. Forest bathing training while increasing the skillset of those who took part, and providing more people with wellbeing activities in woodlands, did not translate into a significant increase in Forest Bathing as a discreet activity. This was due in part to Covid but also due to competing demands on work time.
What we learned	Focus resources where there can be maximum input e.g. train the trainers / capacity building rather than direct delivery. Developing the people and organsiations who can offer continuity to communities. Engaging volunteers with digital projects has potential for engaging more people, outside of the usual Plantlife volunteer demographic, and creating outputs for audiences who may not be able to access natural spaces we are working in (e.g. virtual walks and videos).

Figure 83 Programme 3 organisational learning

Figure 84 Programme 3 Recommendations for the future

Recommendation 1 - **Prioritise a capacity-building approach to engagement to maximise impact and legacy**	Recommendation 2 - **Signpost advocacy opportunities for the public to accompany awareness of and engagement with heritage**
•Work with regional partners (where we are delivering conservation and engagement activity), to understand the value of embedding knowledge, understanding, and skills in staff/volunteers in order to cascade information to local communities. •Resist 'parachuting' into area to deliver in short term. Instead, work in partnership with locally embedded organisations to add value to their delivery and maximise longer term impacts	•It is clear that there would have been merit in having signposted advocacy that the public could become engaged with. There wasn't an advocacy ask but future projects should incorporate this. Plantlife has adopted temperate rainforest as one of two key habitats and intends to increase temperate rainforest advocacy activity nationally, and so this is now possible.

Recommendation 3 -

Develop blended learning opportunities for priority audiences

- Develop CPD and other accredited opportunities for staff and volunteers
- Develop self-led resources via a digital platform (LMS) to support people and communities to develop understanding and progress learning and support us to widen and grow participation beyond projects.

Recommendation 4 -

Build on and explore further digital volunteering and its potential for engaging people and communities

- Use the momentum created through this project and Vibrant Virtual Volunteering to identify opportunites (such as virtual walk creation) for people to volunteer that will further their skills and wellbeing, and also help to spread conservation messages.

Figure 85 Learning walks with the public opened people's eyes to undiscovered parts of familiar landscapes.

Programme 3: Branching Out				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
Showcase events run in partnership with project partners. Themes are woodlands, their history, management and biodiversity. A chance to share project opportunities with local audiences	4 events take place in the Quantock Hills, Exmoor, Dartmoor and Cornwall. 1200 people attend events. 400 people sign up for more project information.	We chose not to run these showcase events. Partners had full events programmes which we contributed to, sharing information with communities about the project.		
Canopy discovery days. Tree climbing and tree canopy exploration supported by self-led resources and identification activities.	85 people engaged with tree climbing and further 30 in additional activities.	These events were not possible due to COVID-19.		
Forest bathing facilitation training for local practitioners. A programme of forest bathing provision targeting local and harder to reach audiences. A support group for forest bathing practitioners newly trained through the project	8 practitioners trained in forest bathing delivery. 32 sessions per year across the region 96 sessions years 1-3 500 people benefit from forest bathing delivery	**8** practitioners trained. **15** sessions took place with **84** people taking part in the activity. All practitioners integrated forest bathing/woodland wellbeing practice into their repertoire. Impacts included a suite of online Forest Bathing and wellbeing activities, staff training at Dartmoor National Park and opportunities for people in the mental health recovery community in Devon and Somerset.	Practitioners have a new repertoire of skills that they are employing in their work with a focus on wellbeing in nature.	Training investment did not translate into the high numbers of beneficiaries envisaged at project development stage. Due in part to Covid and other factors beyond project control including changes in jobs/roles of those who were trained.
Learning walks; introduction to lichens, ferns, mosses and liverworts with citizen science activities.	45 sessions take place over 3 years. 360 people participate in activities	**29** sessions took place. **12** in person events **17** virtual events **1750** people took part in learning activities with **1603** at virtual events and **147** at in-person events.	More people were able to access learning events than would have been possible through the in-person delivery model. Activities for adults reached local people inc. volunteers engaged with partners.	Numbers of events have not met project expectation due to Covid restrictions. Adapting to delivering sessions online when in-person events were not possible is a strength.

Programme 3: Branching Out				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
Walking group leader training for people who lead walks for older people. **Step out to nature walks**. Accessible woodland walks for older audiences.	4 practitioner training sessions facilitated. 24 practitioners attend training. Estimated impact of 250 beneficiaries 15 walks take place over 3 years. 90 people attend walks	**2** sessions for walk leaders/others who interpret the landscape (National Park Visitor Centre staff and volunteers). **33** people attended training. Step out to nature walks did not take place. A decision was made to focus on activity that would have maximum impact i.e., walking group leader training. The robust and active learning walks programme attracted a largely older community of people.	Dartmoor National Park Visitor Centre staff and volunteers were particularly enthused about promoting rainforest and had plans to promote the habitat via centres prior to Covid.	COVID-19 meant having to cancel future walking group leader sessions and sessions for Exmoor National Park Visitor Centre staff and volunteers, and it was not possible to pick these up post-lockdowns.
Hard to Reach Audiences: Young people **A film made with MED theatre company** to explore the Atlantic woodland habitat and its plant life. Preview film night. **Distribution of film** via Moviola to community cinemas in the south west.	10 young people involved in film production. 1 preview night held in community venue. 50 people attend viewing. Film produced and seen by 300 people at community cinemas and 100 people online.	**1** experience day in the rainforest for the **13** young people and support staff making the film. Preview night was attended by **36** young people, friends and family. Film hosted on YouTube and viewed **286** times.	Young people and their families and MED Theatre staff learned about their local natural heritage through the programme. The film is hosted on the MED Theatre YouTube channel and is linked to the project YouTube channel, virtual walks map and as a Future Scientists school resource.	Distribution via community cinema did not go ahead which meant that it had a reduced reach. Despite initial interest, Moviola decided not to distribute the film and there were no other similar options to pursue.
Visiteering activities; self-led, facilitated by project staff and project partners.	800 people involved in visiteering activity	This activity did not take place. There was insufficient staff time within the project to properly roll this out and partners could not identify useful opportunities. The Uncover the Rainforest of the South West guide that was developed	Leaflet and infographics explaining what temperate rainforest is, why it is important and threats it faces has been widely distributed and	The leaflet produced to explain the habitat and introduce the visiteering activity was incredibly useful in communicating to people what the

Programme 3: Branching Out				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
		to support this activity was popular with partners and the public and **6000** copies were distributed.	graphics continue to be used on websites and in partner publications (appendix 19).	project was about. It was popular with partners and at events.
Saplings parent/carer and toddler groups	3 x term long (5-6 week) programmes in year 1/2 of project. 12 parents/carers and children per group = 36 3 x follow up programmes take place in years 1-3 led by beneficiary groups for further 36 beneficiaries	**14** sessions took place over **3** programmes with a total of **73** adult attendances and **72** child attendances. A further babywearing walk took place with **9** adults and **10** children.	More families with babies and very young children were able to access free, local nature-based activities with other parents/carers and children. A programme of babywearing walks was abandoned due to COVID-19. This showed great potential.	Take up within Minehead was excellent when transport was provided by another project. This proved to be a significant barrier to engagement. It was not possible to get the community woodland group or other volunteer to run the group post project – exacerbated by Covid.
Branching Out events. Events run with project partners with woodland focus. Use existing events programme and 'pop up' events. Incorporate visiteering activity.	30 events 2400 people attend events	**16** family/community events took place with **1580** people taking part including **1058** adults and **522** children. This included pop up events at honeypot sites, partner events, local talks, virtual events during covid lockdowns.	These events were useful in creating interest in the habitat and species, distributing resources and encouraging participation in the RWA.	Although popular with partners and good for community relations, long-term impact from the project perspective is limited.
Branching Out resources 4 x versatile self-led or guided learning resources for families on: • Atlantic woodlands • Lichens • Mosses and liverworts • Ferns	4 family learning guides available online and in hard copy 1000 copies distributed. 250 downloads 2500 beneficiaries	**3** family learning guides developed with 4000 copies distributed to families via events and beneficiaries of professional training for use with their audiences.	Evidence of professionals using the resources with own audiences. Guides have been futureproofed so can be used by in any temperate rainforest habitat in England, Scotland, and Wales.	Guides proved popular with adult learners and family audiences. Final guide was not finished due to lack of time. Printable PDF versions available online (environmental factors).

Programme 3: Branching Out				
Pre-project - Activity: detailed description	**Pre-project - Targets and measures of success**	**What happened (outputs)**	**Impact/Legacy (examples)**	**What went well/didn't go well**
Online image library and ID guide template. Volunteers will collect and submit photographs of woodlands and lower plants for use by a range of beneficiaries. Photos will be stored and disseminated via Facebook albums	100 photographs submitted by 50 beneficiaries. ID guide template downloaded 30 times	Photograph library compiled by placement students using own, volunteer and project staff images. Template for printable ID guide developed and made available to partner organisations – appendix 10.	Distributed late in project so no examples of use to share.	There was difficulty finding a platform for sharing resources that was easy for people to use.
Virtual woodland walks soundscapes Online video and sound clips of woodlands created by volunteers and others involved in the project that enable people to experience some of the benefits of being in woods without having to go outdoors.	300 unique views of videos and soundscapes	**36** virtual woodland walks produced by **9** volunteers. **1870** views.	Personal impacts on the volunteers include enjoyment, skills development, and mental wellbeing. The resource gave the project something positive to share with people during COVID-19 lockdowns.	This was a minor part of this programme and exceeded expectations with limited input. Development of this could include volunteer training, and targeted distribution of outputs.

Figure 86 Programme 3 Logic model table

6.3. Factors affecting project delivery

Changes to key personnel

Lead Community Scientist (maternity cover) joined the team via external recruitment resulting in the temporary loss of specialist knowledge around forest ecology, woodland management and lichen and bryophyte identification skills. This was managed by rescheduling of key events (e.g., land manager training) a thorough handover, identification of areas where specialists could be brought in to fill these gaps, and the recruitment of a colleague with a broad range of relevant skills in working in partnership and with volunteers as well as a 'can do' attitude. With support from NLHF we were able to retain both colleagues, at the end of the maternity leave period, through a job share arrangement. This enabled us to maintain capacity when the original postholder returned to work part-time.

COVID-19 and national lockdowns

Negative impacts

National lockdowns meant that meeting people in public was significantly restricted.
Plantlife staff, including the project staff, and partner organisation staff were furloughed between April and June 2020.
Public perceptions around safety were significantly altered for many months after official lockdown restrictions are lifted. For some time after people could meet face-to-face and in groups, group sizes had to be smaller to be able to manage social distancing requirements and people's safety, comfort and confidence.
The period of furlough and restrictions meant that effectively a whole year of face-to-face delivery was missed. Project staff had to prioritise those areas of the project where they could make the greatest impact given the time remaining and ongoing issues around public safety.

Positive impacts

Project team were creative in meeting the challenge of engaging with people when it was difficult/impossible to meet in person. This resulted in innovation in online delivery, something that had not been a part of the project previously. Online meetings and training enabled more delivery, and delivery to people who are unable to commit longer periods of time to training/workshops to take part and so it widened participation. Recorded talks enabled more people to access materials. Hosting content on YouTube for example has reached over 3500 additional people and will continue to provide a legacy post-project.

7. Project success factors

The way in which the project was delivered has been a contributing factor in its ability to achieve intended outcomes. Some of these factors which have contributed to project successes include:

- **Amplification as part of Plantlife's leadership plans**

  Temperate rainforest conservation has been an aspect of Plantlife's work for over a decade. Projects and core activity have tended to be regional or more local, separated by country and project focus. During this project Plantlife has taken a leadership role in Scotland's Alliance for Scotland's Rainforest (ASR). Work done within the alliance around messaging has had a significant impact - moving towards unifying our work by introducing a common language. We now longer talk about 'Atlantic Woodland' or 'Celtic Rainforest' or other terms used interchangeably, but 'temperate rainforest' instead. This makes communication with the public and partners easier and makes sense of our work internally.

  Plantlife's new Strategy to 2030 highlights temperate rainforest as a priority habitat. This amplification has enabled previously disparate teams to come together to develop national resources based on Building Resilience in South West Woodlands outputs such as case studies and the digital toolkit. Through this close collaboration individuals, teams and the organisation has developed a deeper connection between strands of work, understanding of regional/country issues and priorities and how we want to work to protect and restore this habitat.

- **Co-development with partners**

  A key strength of the project has been the co-development with partners, which was enabled through an earlier project on temperate rainforest in the region 'Make the Small Things Count', also funded by NHLF. This short project built relationships, knowledge, and partner capacity to understand the issues for temperate rainforest lichens and bryophytes. As far as possible partners have been involved in co design and delivery of project and its activities including woodland management and volunteer training. This co-development has continued throughout the project as evidence by the demonstration events (Managing the Rainforest in Action), the rainforest management case studies and volunteer training packages.

- **Agile project delivery including ability to move to digital delivery**

  During the lifetime of the project many new opportunities and challenges presented themselves. The ability of the project team (Project manager, Lead Community Scientist) who were supported by an internal working group made up from Plantlife staff to adapt to challenges and capitalise on opportunities has maximised the impact of project outputs. For example, COVID-19 presented many challenges, not least to our events programme. Many in person events had to be cancelled during the first lockdown. The team worked hard to find digital solutions that would enable to work of the project to continue. This included delivering webinars and online meetings (something that had been fringe prior to Covid)

8. Summary of learning

To conclude this report the main learning points which are highlighted throughout, are summarised.

Learning about woodland management, monitoring, and data

1. **Data can be a powerful tool which inspires and informs people and enables both advocacy and targeted conservation management to take place.** We should proceed with employing new technology and support others to use it including stakeholders and volunteers. We must continue to explore applications for data which support organisational goals.
2. **Plantlife has a role to play in enabling land managers** through training, advice and dissemination of good practice around both management and monitoring. We can support land managers with volunteer and contractor training to ensure high standards are met.
3. **Monitoring must become a core aspect of any management work that we facilitate through projects.** We must invest staff time in sites where we have worked in the long term so that we can support ongoing monitoring carried out by partners so that we and others can continue to learn about management practices. We should collect baseline data for habitats and species we are interested in.

Learning about developing skills in others so that they can take action for conservation and engagement with nature

1. **We are effective in developing skills in volunteers, landowners and professionals (both land managers and educators).** We should continue to understand participants and their needs and aspirations. Training should be developed in consultation with stakeholders and co-created where possible. Opportunities for training should be repeated, and programmes flexible to encourage maximum participation. Face to face training (in person and online) should be supported by self-led courses and supporting materials. We should maintain contact with those we have trained in order to measure longer-term impacts and provide ongoing support.
2. **We should focus our resources where we can be most impactful and adopt, unless there is a strong case otherwise, a train the trainer / capacity building approach** rather than direct delivery with audiences such as schools and families. Developing people who can offer continuity to communities will bring longer-term rewards for people and conservation.
3. **Targeted advice and bespoke support should be dovetailed with training opportunities in order to catalyse good intentions into action for conservation.** We should tackle issues around funding for stakeholders through our advocacy work, as this continues to be a significant barrier to taking conservation action when the barriers of lack of skills and knowledge are removed.
4. **We should encourage the development of/facilitate peer networks for landowners, land managers and placement students for ongoing learning, support and collaboration.** Continuing professional development may support audiences to participate in training and develop further our credibility as a learning and development provider. For educator audiences we should maintain a presence in appropriate regional forums in order to continue to inform, inspire, and gain support from this influential group.

Learning about partnerships and project design

1. **We can support and enable others to take action for conservation when we understand our peers and stakeholders, what they are interested in achieving, where their overall priorities lie, what holds them back and what they need from us.** We need to engage with partners at a more strategic level to ensure that learning and good practice is adopted organisationally and not just locally.
2. **Change takes time and so projects should be part of a longer-term strategy for regional conservation efforts.** Stability will enable learning and commitment to grow amongst our stakeholders and for Plantlife to have sustained involvement and influence while developing our own knowledge of habitats, species, conservation management, people, and communities.

Learning about engaging with people and communities including volunteers

1. **We have the skills and networks needed to train volunteers to have useful identification and survey skills.** Where volunteers are trained, we should provide sufficient opportunities for people to employ newly developed skills within projects, and secure relationships within communities, with stakeholder organisations or specialist groups to enable them to contribute in the longer term.
2. **There is great potential in engaging with volunteers and the public through digital activities.** This could broaden our geographic reach, increase audience diversity and improve accessibility of volunteering opportunities, and access to habitats and species. We should investigate which tools we need to maximise out impact and reach and provide training for all those involved in learning and development in skills such as photography and videography/editing.
3. **Where we engage with people and communities, we should have a clear advocacy ask alongside and education activity, volunteering, or citizen science.** This could mobilise communities in support of our and our partners' conservation missions. Improved use of social media platforms and input from organisational communications experts within Plantlife and partner organisations would facilitate this.

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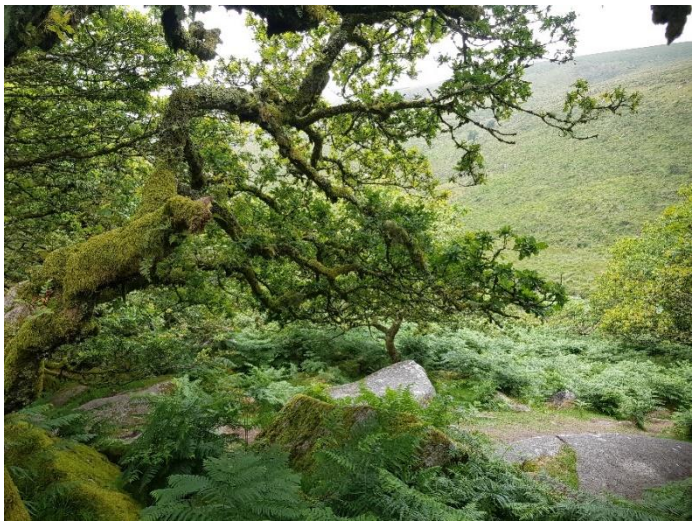

Figure 87 Wistman's Wood, Dartmoor