LEMUR+
WILDLIFE+ TECHNOLOGY+ SKILLS

Evaluation 2015 - 2017

Introduction

In 2014, Ambios Ltd, the lead partner for LEMUR+ was awarded a 'Skills for the Future' grant of £544,700 towards total project costs of £751,054. The project was based on a ten-year partnership and delivered a total of 37 training placements between 2015 – 2017 (20 x 9-month & 17 x 3- to 4-month bursary placements) with 92% of the trainees progressing to either work or further education in the sector.

LEMUR+ Background

In 2006 the Heritage Lottery Fund (HLF) launched a 'Training Bursaries' programme to develop and run an exemplar heritage training scheme. Initially seen as a 'one-off' initiative the programme was a huge success and the ongoing sector demand for heritage training led to HLF launching the 'Skills for the Future' programme in 2009. The 'Learning Environments in Marine, Urban and Rural areas' or LEMUR project as it became known was one of ten national projects chosen by HLF under the original 'Training Bursaries' programme and was successful again in 2009 and 2013 under the new programme.

LEMUR was an accredited training scheme that offered a fast track route to developing the necessary skills and competency required to gain an entry level professional post in nature conservation. The 'on the job' placements and bespoke training reflected either a themed marine, urban or rural aspect of nature conservation. The project was initially led by Herefordshire Wildlife Trust and supported by Ambios Ltd, a not for profit organisation and Sheffield Wildlife Trust. The project involved more than 20 Host organisations during its ten year lifespan, providing a sector recognised qualification and featured three times on the BBC's Countryfile programme.

Two evaluations of this initial version of LEMUR provide very detailed insights into the project's delivery and the lessons learned. These are the 'Final Summative Evaluation Report of Project LEMUR, 1st January 2006 – 31st December 2011' and the supplementary 'Summative Evaluation Report, 'Learning Environments in Marine, Urban and Rural areas' (LEMUR) Project 2006 – 2015, both of which can now be found on the Ambios website, see https://tinyurl.com/LEMUReval. The Ambios website and YouTube channel also feature a number of short-films which further demonstrate how LEMUR contributed to HLF's heritage skills' programme aims.

In addition to these evaluations, an early, independent evaluation of the first HLF programme – "Training Bursaries Programme - Evaluation Report, August 2009" by Robert Bilbrough Associates heavily featured the original LEMUR project. In highlighting various aspects of the LEMUR model such as the quality of recruitment, selection and induction (including promoting diversity), and the overall quality of the training and qualifications provided, the report clearly saw the LEMUR model as providing the type of exemplar heritage training model HLF had hoped to achieve.

The LEMUR+ project has built on the success of the original LEMUR project, which itself evolved out of previous training projects delivered by the main partners and was therefore based on a legacy of

work based vocational training dating back to the late 1990s. Over the years the LEMUR delivery model has been tested, evaluated and adapted to what has become a core set of operations to which innovating concepts can be added in order to further maximise project benefits for learners and overall project outcomes. In this case, the LEMUR+ model grew out of the project partners' successful delivery of heritage interpretation and outreach projects which tested the use of emerging technologies in a range of contexts, most notably with families. In addition to this, and as a result of Focus Group and Development Team feedback it was agreed that the new model should introduce a number of shorter (3-month) bursaries in addition to the 9-month. This was done to take into account the needs of some beneficiaries who could not commit to a 9-month duration due to personal circumstances or who were as yet unsure as to their chosen career path.

The receipt of HLF's 'Skills for the Future' funding through the 2014 round allowed the project partners to formally integrate these elements of their work into the existing LEMUR model and the need for this was reinforced through listening to feedback from stakeholder Focus Groups (prospective and existing bursary holders) and a dedicated Development Team including Host employer organisations. This substantive legacy therefore led to the LEMUR+ project model which integrates wildlife and technology to address employer identified terrestrial and marine skills shortages in:

- Species identification and survey (mapping for management)
- Heritage interpretation (for new audiences) using "citizen science"
- Use of the digital technologies surrounding these practices

LEMUR+ minor operational adjustments

After receiving feedback from potential participants in the first set of full-time 3-month bursary placements it became apparent that a full time 3-month model was not the best fit to our target audience of hard to reach young people from the urban environs of Plymouth. The project Delivery Team moved swiftly to remodel the bursary placements to part-time and recruitment and delivery were then successful. Further feedback from beneficiaries and Host employer organisations then led to a further remodelling of 3-month full-time placements into 4-month full-time placements which then ran for the remainder of the project timeline. This remodelling was completed within budget forecasts and did not affect the final total number of bursary placements offered by the project.

LEMUR+ wildlife.technology.skills

LEMUR+ added a significant area of learning and exploration around the use of technology, both in the workplace and as a public engagement tool. LEMUR+ bursaries were tasked with exploring an area of technology of interest to them and their Host organisation with a view to evaluating its use as a legacy to inform future operational practices.

Using the Wildlife Technology and Equipment Library, some trainees had access to Global Positioning System (GPS) units and iPad minis for their own personal use during the placement and

received training in the use of these and Quantum Geographic Information System (QGIS) software. This initial training enabled them to understand and use a GPS unit with QGIS whilst carrying out field surveys on behalf of their hosts.

The GPS units were used during field surveys such as Mammal Monitoring Rafts, Reptiles, Phase 1 and NVC surveys to log any target note locations, quadrats, notable populations of points of interest (e.g. orchids and veteran trees). It was also used alongside maps when surveying large sites where it was necessary to accurately identify survey location. The QGIS software was used to digitise all survey data and allowed trainees to download detailed habitat and species statistically driven data. During their placements trainees said they became quite proficient in using GPS and QGIS and they became noted for their proficiency by Host staff and volunteers. This was of particular interest to this project as the trainees became the 'Go To' people for advice and instruction of staff and volunteers on the use of QGIS and GPS during their placements. The age demographic of the volunteer biological recorders ranged from 18 to septuagenarian and this aided intergenerational skills exchanges, with the Herefordshire Wildlife Trust placement in particular formally training in excess of 14 volunteers in the use of QGIS.

Feedback from both cohorts of trainees with regard to access to specialised digital kit and specific training was overwhelmingly positive. The trainees reported that in all cases their hosts did not possess GPS or digital tablets for them to use as a trainee ecologist in the field due to both expense and negative perceptions of the value for money and effectiveness that these technologies would bring to their organisation. The trainees and the technology library helped to overcome some of these barriers to the use, and purchase, of kit during the project. Hosts recognised the increasing need for technology to support their work both out in the field and in the office however, they did not feel they had time and/or money to support their own familiarity with and purchase of them.

An interesting example of how LEMUR+ has helped further the use of technology for possible sector wide use relates to the specialist training the trainees received from the University of Oxford in the use of a new field recording app. called Phase 1. When LEMUR+ started, this software was coming to the end of a 3-year development phase during which it was hoped that the conservation industry would begin to download and use it as an industry standard for field surveys. By the end of the development phase the software was not proving to be usable and the trainees consequently had free access and use of it during their field surveys in return for providing further development feedback that would benefit their Hosts take up. What was really exciting and cutting edge was that the trainees gave it such a robust test during their field surveys that their feedback has since been embodied in the software to make it more effective and usable. Some Hosts have consequently gone on to collaborate further with the App. developer in order to help them improve it for sector wide use in the future.

Some of the other technologies used or adapted for use in projects included:

- Mobile phones to record species for use on social media and in presentations
- Digital microscopes with data projection to show live species
- Equipment harnesses to support the use of a camera underwater in order to capture images for species and habitat monitoring

- Word cloud (Wordle) technology to visually demonstrate project outcomes
- Digital bat detectors to investigate the use of marine habitats by bats
- A seashore code using video technology
- Remote cameras to record wildlife to widen participation in heritage engagement

Many of these projects have left workable outcomes which Hosts organisations will now explore further and/or integrate into working practices. The LEMUR+ project leaves a legacy of enhanced technology usage within the wildlife heritage conservation sector and a significantly empowered, technologically experienced ex-LEMUR+ trainee workforce.

Performance against Project Outcomes

Outcome 1 – *By the end of the project we will have met our diversity targets of a minimum of 60% for 3-month (Note: Agreed variation to this outcome also now includes 4-month bursaries) bursary placements and a minimum of 40% for 9-month bursary placements from hard to reach groups including women returning to work, BAME, long term unemployed and those with no previous qualifications.*

Outcome partly achieved: Our diversity data shows that just over 75% of bursaries were female. Just over 21% of all bursaries were Not in Employment, Education or Training (NEETs) and 2.7% were women returning to work. 27% were career changers and just over 5% were school leavers. 54% were unable to find work in heritage jobs due to personal skills shortages. The majority, 73% were in the age range 22-35 with just over 16% in the 35-49 age group.

Outcome 2 - *By the end of the project, 36 bursary placements will have been provided with work-based training in species/habitat identification, field survey and heritage interpretation and associated technology skills with Host nature conservation organisations working in terrestrial and marine heritage environments*.

Outcome achieved: Of the 37 LEMUR+ bursary placements who started, 36 completed their training and one did not. 111 vocational qualifications were completed, ranging from botanical identification field skills to delivering environmental activities, with 120 external training courses attended ranged from public engagement through art printing using fish to earthworm identification.

Outcome 3 – *by the end of the project, the 18 bursaries on 9-month placements will have achieved 3 Units of Competence from the Level 3 Diploma in Environmental Conservation and two Units from the Information Technology Qualification (ITQ).*

And **Outcome 4** – *By the end of the project, the 18 bursaries on 3-month placement will have achieved a Unit of Competence from the Level 2 Diploma in Environmental conservation and one from the Information Technology Qualification (ITQ).*

Outcomes partly achieved: Due to challenges around the availability of the most employer-focused vocational qualifications some variation developed between the delivery at the two project Hubs (Ambios, Devon and Herefordshire Wildlife Trust, Hereford). Devon used the existing Environmental

Conservation Units of Competence (for heritage interpretation and communication and species survey skills) as described in the project Outcome while, due to employer focus, Hereford used the Open College Network vocational qualifications (for plant species identification). The overall result, however, produced bursaries with relevant employer related certificated skills applicable to the labour market. All eight 9-month and all 14 3- to 4-month bursaries from the Devon Hub achieved their Units from the Diploma in Environmental Conservation and from the Information Technology Qualification (ITQ) as described in these Outcomes. The delivery of the ITQ qualification in the work-place presented further challenges but was achieved in the majority of cases at the Devon Hub.

Outcome 5 – *By the end of the project, 2 public 'citizen science' wildlife surveys (1 terrestrial, 1 marine) will have been undertaken showcasing the skills of the bursaries, promoting heritage interpretation, engaging naturalists, professionals and volunteers and over 600 people in the process of wildlife identification and species recording using technology*.

Outcome achieved: Both public 'citizen science' wildlife survey event took place (one at Queenswood, Hereford, one at Salcombe South Sands, Devon). Each attracted approximately 300 people and an additional event at Lower Sharpham Farm, Devon towards the end of the project attracted a further 50 people.

Outcome 6 – *By the end of the project, 2 staff from each emerging Hub (Marine Biological Association) and (South East Wales Biodiversity Records Centre) will have trained in an Assessor/Verifier/Mentor qualification, thereby building their capacity to act as a training organisation post-project*.

Outcome partly achieved with a variation: During the life of the project the circumstance around vocational qualifications delivery changed insofar as the Hosts (Marine Biological Association and South East Wales Biodiversity Records Centre) experienced severe financial crisis which led them to reconsider the role of internal qualifications delivery. While these two Hosts withdrew from the professional development training described by this outcome, another Host, Torbay Coast and Countryside Trust, did take up the idea. An Assessor working for the Trust was trained and subsequently qualified via the Ambios City and Guilds vocational qualifications centre. The LEMUR+ project therefore leaves a legacy of additionally qualified staff at the Trust to assist with future delivery of vocational qualifications.

Outcome 7 – *By the end of the project we will have established a Wildlife Technology and Equipment Library and associated access protocols which will be used by trainees to develop their skills, cascade these skills through their Host organisation and also be used by families to monitor wildlife during the LEMUR+ citizen science BioBlitz events and for post project use.*

Outcome achieved: A Wildlife Technology and Equipment Library has been set up and is now managed by Ambios Ltd. Equipment includes microscope with digital cameras, insect sampling kits, digital tablets, digital bat detectors, moth traps, trail cameras, identification keys, posters and books, digital field guides, a demonstration drone and soil invertebrate sampling and observation equipment. The Library was extensively used by bursary placements at public BioBlitz events held as

part of this project and, continues to be independently used by Hostemployers and other organisations connected to the Ambios network, as well as Ambios itself, for public engagement in heritage wildlife surveys as part of the project legacy.

Outcome 8 – *By the end of the project, 80% of bursary placements will have gained employment in the environmental conservation sector.*

Outcome achieved: We currently have 92% of bursary placements in work or other education. 60% are in heritage conservation work and 10% in other work areas with 22% involved in further learning studies. A number of former bursaries are currently awaiting news of job applications and with each person representing 2.7% points the above figures are subject to change going forward.

Learner confidence

The project on-line confidence index tool was used Pre- and post-bursary placements to discover if individual self-evaluated confidence had changed after participation in the LEMUR+ project. This was completed by 20 of the 37 trainees and the overall change across the respondents appears to show a 25.9% increase in LEMUR+ bursaries confidence levels. For the 9-month bursaries alone, the increase was 28.9%. Social science accepts that an increase over 25% indicates the training is having a long-term significant impact on the participant learning. We can therefore conclude that the LEMUR+ training has made an important contribution to the learning of the bursary placements.

Feedback from Bursaries

Feedback received from bursaries through use of the on-line confidence index tool demonstrated the importance of the LEMUR+ focus on the use of technology, both in the workplace and as a public engagement tool. This feedback also endorsed the value of this training model in relation to the need to gain wider experience in the sector in order to move forward towards employment.

A selection of the comments we received back from our bursary placements highlights the benefits of both LEMUR models:

- *I have gained a lot more confidence since being on the LEMUR+ project, in my knowledge of wildlife species and habitats, conducting wildlife surveys, leading engaging sessions with schools and the public, using technology, working with adults with learning difficulties and delivering and organising public engagement events. Through these experiences I feel I have also developed my confidence within a leadership role which I am very pleased about.*
- *It has significantly increased my confidence in species ID my ability to discuss conservation practices and issues with other professionals and the use of technology to record and work with wildlife. Since completing the traineeship I feel like a professional conservationist, something that was difficult as someone coming out on university and struggling to find a career in the subject.*
- *Some of the best parts of the LEMUR+ experience included meeting like-minded people within the conservation sector, learning an array of different skills from planning and delivering public engagement events, conducting surveys and writing reports, expanding my knowledge on wildlife species and habitats through training courses, having experience in caring for livestock*

- *and lambing, working with the United Response team and overall having new and fun experiences every day.*
- *My confidence in organising session and leading groups has increased astronomically. I also have more confidence in myself - I now feel that I could successfully work in environmental education for a living.*
- *The experience of working in the sector and being treated like a team member not just a trainee.*
- *Gaining the experience and leading events and school sessions with children was incredibly enjoyable and rewarding.*
- *Helping my Host undertake wildlife surveys, and learning how to use the equipment.*
- *More confidence engaging with a wide range of audiences, and planning & running events.*
- *It has massively increased my confidence in talking about marine wildlife, and running events, and about trying to get work in conservation, as I now know a lot more about rocky shore species and have led events myself. It's been great to gain practice in public speaking and doing several presentations has helped.*
- *Way more confident leading a project, communicating ideas to a broad range of people, and managing people.*
- *It has improved my confidence in understanding wildlife conservation issues generally. More specifically, I am now much more confident to embrace new technology such as QGIS and have developed confidence in species ID.*

Evaluation Video and LEMUR+ Statistics for 2015 -2017 Infographic

A short video explaining the project and including testimonials from trainees has been published in line with the original project evaluation description. This is available on the Ambios YouTube channel at - https://youtu.be/5EGmuF6Fl2Q

In addition to this an infographic summarising key statistical data collected from across the two years of the project can be found at - https://tinyurl.com/LEMURinfographic

Sustaining the Project

Previous LEMUR evaluations have acknowledged that HLF made clear at the outset of their various heritage skills programmes that they were always meant to be short to medium term initiatives intended to allow exemplar training schemes to evolve and showcase to others what needed to be taken on whether by other mainstream funders, the sector itself or a combination. Since 2006 the main LEMUR partners, Ambios Ltd and Herefordshire Wildlife Trust (HWT) have worked with other key stakeholders with a view to achieving this aim.

This has included HWT playing a leading role in the delivery of a year-long feasibility study to investigate options and opportunities for the delivery of vocational training by The Wildlife Trusts which was completed in October 2016. The main suggestion from this study was that it might be possible to sustain projects of this type at a reduced level through either apprenticeships or a mix of funding from different sources. The apprenticeship route is one that Ambios and HWT had been pursuing with LANTRA (Sector Skills Council - SSC) and the National Apprenticeship Service (NAS)

going back to 2006. Whilst there has been some progress on this the introduction of the Apprenticeship Levy in April 2017 and the need to agree sector buy-in to, and secure approval for, a new 'Countryside Worker' Apprenticeship Standard has slowed momentum.

In considering the future for LEMUR+ type projects it is worth reflecting on the experience of other 'Skills for the Future' projects. HLF commissioned Ecorys to review all 39 projects funded under the 2013/14 Round of Skills for the Future, which had collectively received £20m worth of funding, with the average grant size being £500,000. The 'Interim evaluation of the Skills for the Future programme (Cohort 2, 2014) Final report concluded that:

"There was a clear view across the research that the Skills for the Future programme has successfully helped to build infrastructure to contribute to sustaining work-based entry level heritage training. However, there was also a consensus that to continue offering traineeships on such a scale would be impossible without external funding." The aforementioned Wildlife Trusts study reached a similar conclusion.

As respondents to the Ecorys survey put it, "The problem is that there are still lots of training needs to be addressed but none of the providers can run a substantial traineeship without external support". (Strategic leader, Historic Buildings)

"We are having a real dilemma about future funding. We have written so many exit plans in the past but the reality is that someone needs to fund this work. In actuality, we bounce from ESF to HLF to Erasmus Plus… it will always be external funding. HLF are absolutely crucial to this." (Case study interviewee, Land and Biodiversity)

The Ecorys report says that the importance of, and need for, external funding for the provision of work-based learning was expressed by almost all research participants and they could not identify any sustainable funding models (other than HLF).

Moving forward post-LEMUR+ there are significant challenges involved in formulating a viable funding model that permits the quality, duration and experiences that have made the LEMUR programme such a success for participants. Trainee-pay and European funding models are enabling some of the quality delivery of the LEMUR programme to continue in a piecemeal manner. With a plethora of other projects mirroring the LEMUR delivery, training the next generation of wildlife professionals in a similar way is set to continue under the stewardship of other organisations while HLF funding continues. It is challenging to see how these programmes will continue without further HLF, or similar, support and without this, the heritage wildlife sector will be in danger of returning to the skills shortages witnessed before the original HLF bursary programme launch in 2005. The challenge with the provision of training is that it is always an ongoing process because the working environment is constantly changing in response to political, social, economic and environmental variables – perhaps never more so than now.

Conclusion

As a training model LEMUR has already been comprehensively evaluated over the past 10 years as noted in the section on the LEMUR+ Background. The fact that it has also secured funding on four occasions since 2006, retained a broad core of Host organisations year on year, is always heavily oversubscribed for training places and has a clear track record of propelling trainees towards secure employment, validates it as a robust training model, valued by both employers and those seeking to access employment in the sector.

Rather than revisit the efficacy of this training model which is already proven, I have instead collated a range of information about the project and considered the extent to which the LEMUR+ model has performed against its stated outcomes. In particular, the greater focus on integrating wildlife and technology to address employer identified skills shortages in species identification and survey, heritage interpretation and the use of the digital technologies surrounding these practices.

In reviewing the project, I attended both of the main LEMUR+ graduation events at which all trainees demonstrated the use of technologies in their individual projects and at each I spoke to various trainees about their experience of the LEMUR+ training. I also attended meetings with regard to the content of the films and the type of data to be used to inform the statistical infographic both of which were produced to form an integral part of the project's overall evaluation. I have also reviewed a sample of the exit interviews from trainees and read the report generated through use of the on-line confidence index tool.

LEMUR+ set out to enhance LEMUR through adding a significant area of learning and exploration around the use of technology. It was very clear from the trainee presentations at the two LEMUR+ graduation events that this had been achieved, with presentations very much focused on the use of technology in the workplace and as a tool to engage and enhance the learning experiences of the general public. As reported in the LEMUR+ wildlife.technology.skills section above, the greater focus on technology was very much welcomed by the trainees and the examples provided in that section highlight how this also helped to change attitudes at Host organisations. The University of Oxford collaboration has seen the LEMUR+ programme significantly input to the testing and development of a new App which could in future be used by the sector for field recording.

In terms of how LEMUR+ performed against its stated project outcomes, most of these were fully met with some variations and programme remodelling where circumstances changed and as described in the Outcomes section. When compared with the aforementioned LEMUR evaluations, LEMUR+ performed similarly well to its predecessor with the key highlights being that:

- Demand for LEMUR+ training was high with over 570 applications for the 36 places on offer
- 36 beneficiaries were fully trained in employer identified 'skills gap' areas as well as generic 'on the job' effective work skills, such as project management, I.C.T, leadership and communication skills and employability skills
- More than 111 Vocational Qualifications were achieved through 11,400 hours of 'on the job learning' and more than 120 additional training courses were attended

- 92% of trainees are in work or other education, with 60% in heritage conservation work and 10% in other work areas and 22% involved in further learning studies. This is likely to improve further with a number of former bursaries currently awaiting news of job applications and this very
- Favourably contrasts with the starting figure of 54% of trainees previously unable to find work in heritage jobs due to personal skills shortages
- One additional Assessor has been trained and qualified via the Ambios City and Guilds vocational qualifications centre and the LEMUR+ project therefore leaves a legacy of additionally qualified staff to assist with future delivery of vocational qualifications
- Trainee work placements involved them in collectively delivering 33 heritage, wildlife, or conservation objectives of their Host organisations and recording almost 1,000 Ha of key habitat
- 3 public 'citizen science' wildlife surveys were held involving 650 members of the public
- A Wildlife Technology and Equipment Library has been established for use by Host organisations and the general public in the future

This evaluation marks the end of a ten-year journey which has seen the development of a robust training model now replicated by others across the sector. As a previous evaluation noted; "*LEMUR is now nationally recognised by sector employers, LANTRA and CIEEM as exemplary in helping fill industry skills gaps, particularly in species identification, species and habitat surveys, habitat management and heritage interpretation, and in supplying appropriately trained and experienced new recruits to the industry*." LEMUR+ has enhanced this model further with the addition of a greater technology focus, something that will be increasingly important given the environmental challenges ahead and especially those linked with the need to monitor, mitigate and adapt to the impacts of global climate change.

LEMUR+ project evaluation report compiled by Michael Singh for Ambios Ltd

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