Darwin Initiative Main Project Annual Report

Important note: *To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be no more than 10 pages in length, excluding annexes*

Submission Deadline: 30 April

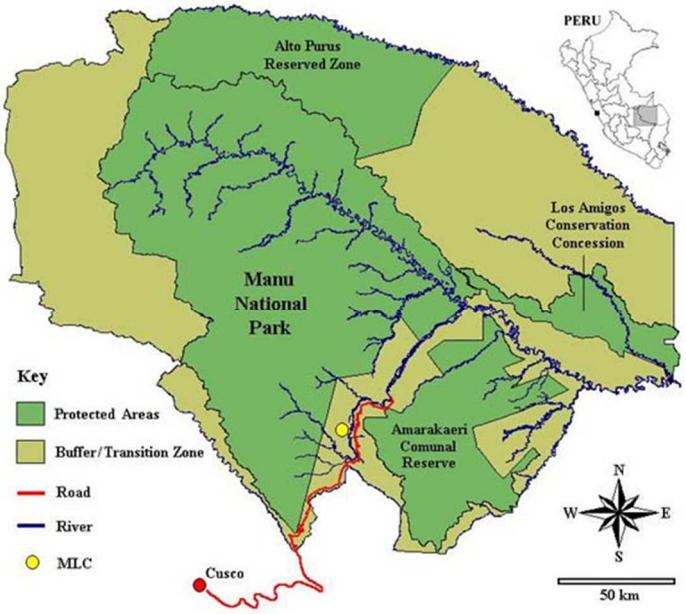
Darwin Project Information

Project Reference	22-003
Project Title	Sustainable Manu: biodiversity conservation through sustainable development and rainforest regeneration
Host Country/ies	Peru
Contract Holder Institution	University of Glasgow
Partner institutions	Crees Foundation, Manu National Park and consortium of Peruvian and international partners
Darwin Grant Value	£289,728
Funder (DFID/Defra)	Defra
Start/end dates of project	1/04/2015 to 31/03/2018
Reporting period (e.g., Apr 2015 – Mar 2016) and number (e.g., Annual Report 1, 2, 3)	Annual Report 1 (Apr 2015 – Mar 2016)
Project Leader name	Ross MacLeod
Project website/blog/Twitter	
Report author(s) and date	Ross Macleod (based on individual reports and data from lead Peruvian partner the Crees Foundation), April 2016

1. Project Rationale

The world's rainforests are vital for preserving global biodiversity and maintaining essential ecosystem and economic services. Yet a widespread perception exists that there is a fundamental conflict between the desire to conserve biodiversity in healthy rainforest ecosystems and the aspirations and needs of impoverished local peoples living in and around rainforests. The Amazon rainforest and, specifically, the Manu Biosphere Reserve UNESCO World Heritage site, exemplify this major global challenge of how to both preserve biodiversity and develop sustainably. Currently, local communities in Manu are forced to financially rely on destructive practices such as logging and unsustainable agriculture. The result is an unsustainable downward spiral of environmental degradation that both reduces rainforest biodiversity and decreases long-term economic returns for local people. Furthermore, areas that have experienced significant human disturbance are perceived (by both local people and conservation managers) as having little economic or conservation value. Due to this undervaluation of their current land, people living within buffer zones around Manu are driven to further exploit and encroach on primary rainforest for economic survival. If deforestation rates are not reversed, we risk losing over 40% of the Amazon rainforest in the next 35 years.

The project is located in the Manu Biosphere Reserve, a UNESCO World Heritage Site in the Amazon rainforest of SE Peru established because of the role it plays in protecting one of the most biodiverse areas of the world. As well as having a high global conservation value, its forests hold huge stocks of carbon, influence weather patterns, maintain water quality in the region's rivers, reduce soil erosion, flooding and landslides (that can cut regional road and communication links) and provide many jobs related to tourism across the country. Within the Manu Biosphere Reserve surrounding its core protected areas lie what are designated cultural buffer zones. These areas are the focus of the Sustainable Manu project because they are home to thousands of local people, both indigenous and settlers, who live amongst a matrix of heavily disturbed forest and land cleared for agricultural practices. As in many tropical areas, over time subsistence agriculture becomes less successful as once rich rainforest soils deteriorate and the remaining forest that once provided additional sources of food, clean water and building materials becomes more and more distant. For many marginalised local communities, survival and the economic resources to access health, education and resources in general becomes dependent on further land clearance, illegal logging, over-harvesting of natural resources or other environmentally destructive activities such as gold mining. The result is an unsustainable downward spiral of environmental degradation and decreasing economic returns that constantly drives people and communities further into primary rainforests, damaging or destroying the globally valuable ecosystem services they provide. Once forced into colonizing these fragile rainforest environments, local communities are forced to repeat the cycle of environmental destruction and decreasing economic prospects that accompanies unsustainable human exploitation.



2. Project Partnerships

The Sustainable Manu project is led by a formal partnership between the Institute of Biodiversity, Animal Health and Comparative Medicine (IBAHCM) at the University of Glasgow and the Crees Foundation, a Peruvian sustainable development and conservation research NGO (signed partnership agreement available on request). The Sustainable Manu project application was developed at the request of the Crees Foundation who lead on project delivery in Peru and provide the focus for collaboration with the other Peruvian partners. The project was designed, built and the application jointly written by staff from the University of Glasgow and Crees. The project is also delivered with the support of Manu National Park, who are the primary protected area at the core of the wider Manu Biosphere Reserve within which the project works. The National Park management and staff are one of the primary audiences for the biodiversity monitoring data being collected to provide an evidence base for establishing the conservation value of the regenerating rainforests within and around the park. Project staff meet regularly with the park management in planning the biodiversity survey work and developing permit applications. As well as these main partners the project has also worked on developing three further partnerships involving the University of Oxford, the Instituto de Educación Superior Tecnológico Publico del Manu (IESTP, a technical college in Manu) and the Peruvian Ministry of Education (see section 11 for changes to this partnership).

3. Project Progress

3.1 Progress in carrying out project activities

Out of the 18 key project activities outlined in the logical framework, 12 activities were planned to start in year 1 of the project and all of these were successfully started. The majority of these activities will continue to run through the course of the 3 years of the project.

Output 1 *Quantification of the potential for micro-enterprise to reduce unsustainable use, or exploitation of primary rainforest forest habitat.*

Activities 1.1 & 1.2 Recruitment of participants for agroforestry and other micro-enterprise initiatives & Measure initial unsustainable use of primary forest by local participants and ongoing levels of sustainable and unsustainable activities

A total of 31 micro-enterprise participants were recruited and started to develop biogarden (20) and agroforestry (11) enterprises based on using their existing, already cleared land rather than on clearance of new primary habitat. The initial goal was to achieve start-up of 25% of the planned 110 micro-enterprises in the first year (with 50% in year 2 and 25% in year 3) and these 31 start-up businesses represented 28% of the project total so slightly exceeded the first year goal. By the end of the year the agroforestry plots had been planted with fast growing banana plants as the initial cash crop, interspersed between rapidly growing soft and slower growing hard wood timber trees to provide the long-term sustainable crop that will allow farmers to continue to use their land long-term (rather than having to repeatedly clear primary habitat) while also regenerating forest cover to provide new habitat for rainforest biodiversity. The recruitment process for entrepreneurs has been reviewed during the reporting period. CREES has also entered into an agreement with Chaskawasi artesania which provides a sales outlet for handicrafts. In addition, the project has interviewed four tourism professionals with a view to identifying other support initiatives.

In terms of household surveys, following five pilot surveys the questionnaire was amended based in the feedback received. While there has been some resistance to the household surveys (see sections 3.4 & 9), the questionnaire has been rolled out over 44 households and will be used on all new participants to the project.

Activity 1.3 Measurement involvement with, income and welfare benefits of microenterprises

Two staff have been trained in community monitoring. The assessment forms and a database have been established for the household surveys. These monitor income, welfare and time spent on different activities and will be carried out annually. Monitoring and evaluation of four agroforestry plots has been carried out on a quarterly basis.

Output 2 *Increased knowledge within the community of sustainable practices, natural land management, entrepreneurial skills, eco-tourism and local genetic resources.*

Activity 2.1 & 2.2 Delivery of Natural Land Management course & Development of Entrepreneurial Module

Technical support on training and maintenance for biogardens has been delivered 12 times during the reporting period to the José Carlos Mariátegui School in Salvación, where the school biogarden has doubled in size. A change in Principle impacted on the delivery of the course (see section 11) at this school. There has been additional interaction with a second school, Palotoa, with a view to further dissemination of the course. Two modules on entrepreneurship have been developed and workshops delivered. A monitoring plan for workshop and training activities, to provide a measure of quality control, has been developed (see section 8).

Activity 2.3 Deliver training workshops supported by external partners

The project supported the delivery of a seed harvest and storage workshop (with 10 participants) and created a small seed supply to support agroforestry enterprises.

Output 3 *Increased participation in sustainable micro-enterprises and associated increased incomes within the local community.*

Activity 3.1 Training initiatives and workshops on micro-enterprises

Workshops have been delivered on numerous occasions including: three biogarden basic knowledge workshops to 23 participants; covering composting, pests and diseases, seeds, crop rotation and recycling; five cooking workshops and two business workshops have also been delivered to 55 participants. Three Business Idea Sharing workshops and six Business Planning workshops have also been designed for future delivery. In addition, a review of training staff and the training curriculum has been started.

Activity 3.2 Provide technical support and materials for creation of micro-enterprises

There have been a total of 11 technical visits to agroforestry entrepreneurs and 20 person-to-person visits to biogarden entrepreneurs in order to support the creation of these enterprises.

Output 4 *Increased knowledge of biodiversity conserved through rainforest regeneration and how high priority conservation species use regenerating rainforest, shared through scientific papers and environmental education to local and international audiences.*

Activity 4.1 Survey and data collection on regenerating rainforest biodiversity

A series of surveys have been carried out on biodiversity in regenerating rainforest covering seven major taxa:.

- An avian and mammal transect has been completed and one is in progress.
- An amphibian and reptile pitfall survey has been completed and one is in progress.
- An amphibian and reptile visual encounter survey has been completed and one is in progress.
- A butterfly survey has been completed at different levels of the canopy, and one is in progress.
- Surveys on dung-beetles and orchid bees being intitiated.

In addition, terrestrial and canopy camera trapping has been started and is in progress. Continuous monitoring through the collection of incidental information reports on mammals and reptile encounters is also taking place.

Activity 4.2 Development of environmental education materials on biodiversity and its value in the Manu area

A series of educational materials have been or are in the process if being developed, including:

- Development of real-rainforest experience workshop (complete)
- Education programme delivery manual (complete)
- Bilingual field guides on the biodiversity of amphibians (in progress)
- Bilingual species (reptiles) descriptions for biodiversity field guides completed or in progress for 26 of 102 species
- Biodiversity guides on butterflies are being initiated.
- A biodiversity class “Why is Manu National Park so important: a comparison with the UK” has been developed (lesson plan, PowerPoint and photos) and delivered, with a second foreseen.

Activity 4.3 Biodiversity value and environmental education awareness workshops for local community and conservation managers in Manu

Three of the “Real-rainforest experience” workshops have been implemented to a total of 35 local school children and four teachers. A four-day workshop to 11 students at the San Isidro School focussed on butterflies as a means or estimating biodiversity.The delivery of volunteer education programmes is in progress.

The presentation of research results to volunteers has been made on four occasions and three environmental education classes at the José Carlos Mariátegui School have been completed. Communication has also taken place through local fairs, such as the 'Salvación banana fair. In addition, presentations can be made to visiting international groups of students – this has taken place for the Carolina Friends School while visiting Manu.

Activity 4.4 Talks, presentations and scientific communication of biodiversity results to local, national and international audiences

Five blogs postings have been produced (see Annex 3, table 2 for links)

- Reptile reproduction
- Tree Top Manu Paper
- Wooley Monkey Feeding habits
- Bobbin-tracking reptiles
- Research paper summary

Over half a million 'hits' through social media channels have been recorded. There have been 27 presentations on local conservation issues to 116 tourists in the park and an additional five presentations to expedition groups (see Annex 1).

Training in conservation research methodology has been made to 145 international students, and two Peruvian interns. However, volunteer numbers are down in 2015/16 compared to previous years, reducing the total number of volunteers that will be available for training. The delivery of local (internship) education programmes has taken place on two occasions, with two further deliveries in progress.

The Sustainable Manu project was invited by the park management to present the project's initial findings at a conference entitled Advances in Research in Manu National Park held in Cusco, Peru on August 2015 to an audience of approximately 100 members of the Manu conservation community. Crees Biodiversity Field Team leader, Jaime Villacampa, presented two talks entitled: "Biodiversity value of tropical regenerating forests" and "Amphibian communities along an altitudinal gradient in the Peruvian Amazon." The talks covered the Sustainable Manu's first year preliminary results and were used to generate discussions with National Park staff and the Manu conservation community about the high levels of biodiversity being found in the buffer zones, which are often perceived to have low or no conservation value.

Two talks were presented to around 80 tour guides at Peruvian conference covering 1) the nature of eco-tourism in Manu National Park and how guides can use experiential learning to inform and inspire and 2) how different land-use within the buffer zone influences the biodiversity of the region. The programme participated in the International Biodiversity and Conservation of the Tropical Andes and the Amazon Rainforest conference in Lima, Peru in October 2015. A talk on 'Amphibian communities of the Piñi-Piñi range (Manu Biosphere Reserve, Peru)' and posters on 'Feeding ecology of the common woolly monkey' and 'Habitat selection of an undescribed species of poison dart frog in the Peruvian Amazon' were presented.

Activity 4.5 Writing of reports and scientific papers on the value of regenerating rainforest biodiversity

Four papers on biodiversity have been published. Published titles (see Annex 3, Table 2 for details) are:

- Out on a limb: Arboreal camera traps as an emerging methodology for inventorying elusive rainforest mammals
- Past Human Disturbance Effects upon Biodiversity are Greatest in the Canopy; A Case Study on Rainforest Butterflies
- How much potential biodiversity and conservation value can a regenerating rainforest provide? A 'best-case scenario' approach from the Peruvian Amazon
- A first test of the thread bobbin tracking technique as a method for studying the ecology of herpetofauna in a tropical rainforest

Future papers are being prepared on:

- Long-term amphibian surveys
- Survey methods for multi-taxa
- Temporal stability of butterfly communities
- Correlation of arboreal and terrestrial mammal activity.

Output 5 *Delivery of a practical, evidence-based, implementable strategy to Manu Biosphere Reserve community documenting the potential for rainforest biodiversity conservation through sustainable development linked to rainforest regeneration.*

All output 5 activities are for the year 2017/18.

3.2 Progress towards project outputs

Output 1:	Quantification of the potential for micro-enterprise to reduce unsustainable use, or exploitation of primary rainforest forest habitat.			
	Baseline	Change recorded by 2016	Source of evidence	Comments (if any)
Indicator 1.1	The proportion of working time participants spend on sustainable activities and micro-enterprise initiatives	Baseline data collected for subsequent estimation of change.	Annex 1, 4 & 5	
Indicator 1.2	The proportion of working time participants spend away from their own land for activities linked to unsustainable exploitation or primary rainforest.	Baseline data collected for subsequent estimation of change.	Annex 1, 4 & 5	
Output 2:	Increased knowledge within the community of sustainable practices, natural land management, entrepreneurial skills, eco-tourism and local genetic resources.			
	Baseline	Change recorded by 2016	Source of evidence	Comments (if any)
Indicator 2.1	The number of students enrolled on natural land management, eco-tourism, entrepreneurial and environmental awareness courses.	College links established and presentations made. A second college approach in process	Annex 1, 4 & 5. See also report sections 3.1 and 8.	
Indicator 2.2	The knowledge of local participants of sustainable practices, natural land management, entrepreneurial skills, eco-tourism and local genetic resources.	Initial collection of data on characteristics of land use.	Annex 1, 4 & 5. See report section 3.1	

Indicator 2.3	Creation of micro-enterprise initiatives using knowledge and skills delivered by project training initiatives.	To define	Annex 1, 4 & 5	This work is beginning in Year 2
Output 3:	Increased participation in sustainable micro-enterprises and associated increased incomes within the local community.			
	Baseline	Change recorded by 2016	Source of evidence	Comments (if any)
Indicator 3.1	The number of people benefitting from the micro-enterprise initiatives.	Multiple interventions	Annex 1, 4 and 5	
Indicator 3.2	The number of agroforestry plots, biogardens and micro-enterprises.	On-going technical report to 54 entrepreneurs	Annex 1, 4 and 5	
Indicator 3.3	Income generated through sales of produce etc through the local Manu Cooperative that the project helps set up.	Starting year 2	Annex 5	
Output 4:	Increased knowledge of biodiversity conserved through rainforest regeneration and how high priority conservation species use regenerating rainforest, shared through scientific papers and environmental education to local and international audiences.			
	Baseline	Change recorded by 2016	Source of evidence	Comments (if any)
Indicator 4.1	The number of high conservation priority species and amount of biodiversity found in regenerating rainforest.	Initial surveys completed for all species (25% of surveys planned) and further surveys in progress.	Annex 1, 4 & 5	
Indicator 4.2	The number of participants involved in environmental and biodiversity education courses and activities and the knowledge they display afterwards.	Multiple materials, including bi-lingual materials, produced. Multiple educational and training events produced.	Annex 1, 4 & 5	
Indicator 4.3	The number of submitted and published papers, reports and other educational resources produced as a result of biodiversity monitoring.	Four papers published and a range of other educational materials produced.	Annex 1, 4 & 5, see report section 3.1 and Annex 2 Table 2	
Output 5:	Delivery of a practical, evidence-based, implementable strategy to Manu Biosphere Reserve community documenting the potential for rainforest			

	biodiversity conservation through sustainable development linked to rainforest regeneration.			
	Baseline	Change recorded by 2016	Source of evidence	Comments (if any)
Indicator 5.1	Completion and submission to conservation decision makers in Manu and Peru of a written strategy for integrated biodiversity and sustainable development around the Manu Biosphere Reserve	N/A		Due 2016/17
Indicator 5.2	Presentation of project results to conservation managers and decision makers	N/A		Due 2016/17

3.3 Progress towards the project Outcome

Biodiversity monitoring surveys have been initiated for the 44 high conservation priority species in the Manu area with monitoring of seven indicator taxa (birds, mammals, amphibians, reptiles and butterflies, dung beetles and orchid bees). Thirty-one sustainable micro-enterprises of two types (biogarden and agroforestry) have been undertaken by participants and support for two further types of micro-enterprise (ecotourism guiding and sales of local artisanal products) initiated. A household survey for all participants has been designed and is being implemented so that time spent on activities is being recorded and be can be analysed as project proceeds. With 31 micro-enterprises initiated and average family size of five per participant, an estimated 155 participants are benefitting so far.

Outcome:	Demonstrate to the conservation community how rainforest regeneration can deliver high-priority biodiversity conservation and enhanced livelihoods for communities currently dependent on unsustainable exploitation of rainforest habitat in Manu Biosphere Reserve.			
	Baseline	Change by 2016	Source of evidence	Comments (if any)
Indicator 0.1	The number and relative abundance of species of high biodiversity conservation priority, and the species richness of other indicator biodiversity, using and relying on regenerating rainforest.	Data gathering has begun and will continue throughout the project. Data demonstrate that regeneration of human-degraded forest leads to increased biodiversity, meaning that using regenerating forest is a viable alternative to further destruction of pristine forest habitat.	Annex 1, 4 & 5	
Indicator 0.2	The type and number of rainforest	31 agroforestry and biogardens have been	Annex 1, 4 & 5	

	regeneration and sustainable micro-enterprise initiatives successfully initiated by participants trained during the project.	identified and created and a comprehensive training programme established.		
Indicator 0.3	The proportion of time participants spend involved in new sustainable micro-enterprise activities, compared to time spent exploiting surrounding primary rainforest habitat.	Household survey work has begun and will continue on a regular basis.	Annex 1, 4 & 5	
Indicator 0.4	The number of people directly benefiting from each micro-enterprise initiative and the amount by which income changes for each participant.	Future work will inform this inidicator.		

3.4 Monitoring of assumptions

Assumption 1: Local community and conservation managers remain receptive to micro-enterprise approaches, to combining conservation and sustainable development goals and to project staff. Project staff and the local partner have being working in the Manu area for many years so are well versed in monitoring the local political temperature and diffusing potential difficulties.

In general, the local communities remain receptive. However, while pilot household surveys were well received, there has been some resistance to full implementation of the surveys by some householders concerned about data (on activities of questionable compliance with local or national regulations) flowing back to government organisations. This has been addressed by spending additional time redeveloping the household questionnaires so that information being sought is of a less sensitive nature.

Assumption 2: Peru is a country where earthquakes and landslides occur regularly and these can close roads and cut transport links. An important assumption is therefore that natural disasters don't impede access to the project area for lengthy periods (many weeks). The project can't control natural disasters but can easily monitor road closures etc and as most project staff will spend most of their time in the project area it should be possible to adapt fairly quickly to such unpredictable events.

No issue this reporting period.

Assumption 3: Major national or international political instability doesn't cut transport links. Peru is also a country where road blockades are a normal part of the political landscape and major international events such as 9/11 have in the past reduced transport availability. Again these are situations that can be monitored readily and having staff have the experience in adapting to such situations.

No issue this reporting period.

3.5 Impact: achievement of positive impact on biodiversity and poverty alleviation

A key achievement of the project work to-date is the demonstration of the sustainability of using regenerating forest to support microenterprises based on biodiversity or sustainable land-use. To that end, the collection of biodiversity data from regenerated forest has been a key output. The increasing biodiversity of regenerating forest suggest that using human-disturbed forest can be beneficial to local communities and, therefore, that there is no need to abandon it as has typically been the case.

Building on this information, the project aims to change how National Park management thinks that regenerating areas with a view to these being developed using economically sustainable enterprises involving biogardens (typically involving women) and agroforestry (typically involving men), which also support the recovery of biodiversity. The economic benefits of these regenerating areas mean that there will be reduced pressure to further degrade pristine forest.

While the project is not specifically targeted at alleviating poverty, the economic model of the sustainable enterprises is expected to increase the income of local households.

4. Contribution to SDGs

This DEFRA funded Darwin project does not include a formal goal to contribute to SDGs. However, the project contributes to SDG 2 by promoting sustainable agriculture and SDG 8 by promoting sustainable economic growth, through the development of 20 biogarden projects run by local households and 11 agroforestry enterprises.

5. Project support to the Conventions, Treaties or Agreements

The evidence on the conservation and biodiversity value of regenerating rainforest being collected in Manu is being used to increase the understanding and perceived value of biodiversity and regenerating rainforest and its protection in the Manu Bisopehere Reserve UNESCO World Hertitage site, Peru (Convention on Biodiversity – CBD – Articles 1 & 8). The project provides an additional route for Amazonian biodiversity protection (CBD Articles 5 & 6) by demonstrating the economic benefit of using regenerating forest which, through the empowerment of the community and provision of long-term support for sustainable livelihoods, also supports the CBD (Article 10). The enhancement of relevant educational resources, the creation of entrepreneurial micro-enterprise based on sustainability and the provision of enriched economic opportunities will incentivise conservation by those who rely on it directly (CBD Article 11).

With regards to the Nagoya Protocol on Access to Genetic Resources, while the project includes an assessment of the potential for local communities in Manu to benefit from access to and benefit from the sharing of local genetic resources (such as traditional medicinal plants) this benefit has so far had limited local impact, though may be more impact at a regional or national level.

6. Project support to poverty alleviation

Although the project is focussed on sustainable use of ecosystems rather than directly on poverty alleviation, it will assist in reducing poverty through enhancement of the education system and provision of resources to develop economically sustainable biogarden and agroforestry enterprises. In addition, biogardens, which are typically run by women, will provide income directly to families and empowerment for local women as well as providing a source of food. Finally, the microenterprises produce handcrafts and tourist goods, and an agreement with a market for such goods has been concluded by the project.

7. Project support to Gender equity issues

While the project is not targeted specifically on gender equity issues, the *de facto* differentiation between biogardens being run by women and agroforestry plots by men, means that it has an impact across gender, promoting support to the family and poverty alleviation (see above).

8. Monitoring and evaluation

Monitoring of the biodiversity outcomes and outputs (Outcome indicator 1) is carried out through the project GIS database containing all biodiversity distribution and abundance data collected during the project. The results of each individual monitoring survey are entered into the database immediately after collection and the Biodiversity Field Team Leader and the Biodiversity Monitoring Coordinator, then use the database to produce monthly reports on the biodiversity recorded by the project.

The key means of monitoring the micro-enterprise results (Outcome indicators 2, 3 & 4) is through the use of regular household surveys of the participants being supported by the project. The project Education and Entrepreneurship Officer, is responsible for overseeing the monitoring of the households. The household surveys have provided an interesting learning curve for the project about local concerns that data might in some way be seen by the authorities. As a result, the household surveys have been revised and developed several times over the course of year 1 in response to trials with initial micro-enterprise participants as some of the questions (linked to activities that participants might have been carrying out in the past, such as unsanctioned logging within protected areas) where seen as too sensitive. The project has now achieved a standard household survey design that is acceptable to the participants and this is being completed for all participants in the micro-enterprise initiatives (even those who trialled earlier versions) so that the project has a standard baseline against which to quantify project outcomes.

The formal household surveys are being supplemented by visual inspection (documented by photographs) of agroforestry plots, biogardens, etc. by project staff and participants. These informal inspections occur several times a year, with frequency depending on individual need for support and stage within the project. Assessment of progress towards indicators is therefore designed not just to be assessed by project staff but to be an activity that participants perform to help maximise their income gains and learning and to allow them (and the project) to adapt as lessons are learned or difficulties identified.

9. Lessons learnt

- Through listening to communities – seems that agroforestry areas are larger than predicted (originally 1 Ha) – so fewer locations but larger plots
- Setting up household surveys – despite good reception at planning level, higher level of concern (about reporting of information to the authorities) when carrying out the surveys, meant it took longer than expected to develop an acceptable set of questions but these have now been successfully developed and the household surveys are being rolled out to all project participants.

10. Actions taken in response to previous reviews (if applicable)

Nota applicable to this report.

11. Other comments on progress not covered elsewhere

Oxford are providing technical advice on the design of the socio-economic monitoring and evaluation surveys through Claudia Comberti. As well as regular skype and email advisory sessions with Crees, Dr Comberti visited the project in Peru, with a visit to Crees office in Cusco and the project field site at Salvación in the Amazon in September 2015.

The partnership with IESTP started well with Crees and IESTP working together to deliver four training modules on natural land management, eco-tourism, entrepreneurial and environmental awareness in the schools. However, this initial success faltered with the intervention of local politics when a new director was unexpectedly appointed for the technical school and chose to change the courses being delivered form ones focused on ecotourism and natural land management to one focused on construction, which was incompatible with the aims of the sustainability and environmental awareness the project is seeking to deliver. However, as a result of this difficulty Crees consulted directly with the regional department of the Peruvian Ministry of Education who requested that instead of focusing on educational provision in a single school the Sustainable Manu project should widen its scope and deliver the same types of entrepreneurial and environmental awareness training through the regional schools network (which would allow

education activities to reach both children before they go into the work place and working adults through a series of local parent teacher associations). This change in partnership should significantly widen the project in terms of a key output of the project (increasing more people's knowledge of sustainable practices, natural land management, entrepreneurial skills, eco-tourism). At a formal meeting with Peruvian Education Ministry official at the Manu Learning Centre in July 2015 an agreement to this effect was signed by Crees and education ministry officials. As of the 15 November 2015 the partnership between Crees and IESTP therefore ended and it is intended that as year 2 progresses with the Ministry of Education the Sustainable Manu project will request a change to some of the activities and indicators in the Darwin logical frame work, while keeping the overall output of increased knowledge the same. The two other partnerships specified in the application are expected to be developed in year 2 as agroforestry and other initiatives develop to the stage where they need more detailed technical advice.

12. Sustainability and legacy

For future reporting.

13. Darwin Identity

Darwin identity is shown on the Crees Manu Foundation website (http://www.crees-manu.org/foundation/). There is no specific project website (though it is referenced at: http://www.gla.ac.uk/researchinstitutes/bahcm/internationalisation/southamerica/research/ecology/headline_412857_en.html). Both Crees Manu and UG have twitter feeds, but not specifically related to the project. A number of blogs from the project have been published (see section 3.1).

14. Project Expenditure

Table Project expenditure during the reporting period (1 April 2015 – 31 March 2016)[1]

Project spend (indicative) since last annual report	2015/16 Grant (£)	2015/16 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	47,524	46,965	-1%	
Consultancy costs	0	0	-	
Overhead Costs	4,620	4,620	0%	
Travel and subsistence	13,050	13,009	0%	
Operating Costs	24,970	24,929	0%	
Capital items (see below)	13,100	13,826	6%	
Others (see below)	1,700	1,608	-5%	
TOTAL	**104,964**	**104,957**		

[1] Additional funds from other sources, as described in the proposal, are also used to contribute to the activities of the project

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2015-2016

Project summary	Measurable Indicators	Progress and Achievements April 2015 - March 2016	Actions required/planned for next period
Impact **Determine the value of rainforest regeneration for catalysing biodiversity conservation and sustainable development in human-use zones of Manu Biosphere Reserve, so validating a widely applicable, collaborative solution to biodiversity loss.**			[redacted]
Outcome Demonstrate to the conservation community how rainforest regeneration can deliver high-priority biodiversity conservation and enhanced livelihoods for communities currently dependent on unsustainable exploitation of rainforest habitat in Manu Biosphere Reserve.	1. The number and relative abundance of species of high biodiversity conservation priority, and the species richness of other indicator biodiversity, using and relying on regenerating rainforest. 2. The type and number of rainforest regeneration and sustainable micro-enterprise initiatives successfully initiated by participants trained during the project. 3. The proportion of time participants spend involved in new sustainable micro-enterprise activities, compared to time spent exploiting surrounding primary rainforest habitat. 4. The number of people directly benefiting from each micro-enterprise initiative and the amount by which income changes for each participant.	1. Biodiversity monitoring surveys have been initiated for the 44 high conservation priority species in the Manu area with monitoring of 7 indicator taxa (birds, mammals, amphibians, reptiles and butterflies, dung beetles and orchid bees). 2. 31 sustainable micro-enterprises of two types (biogarden and agroforestry) initiated by participants. Support for 2 further types of micro-enterprise (ecotourism guiding and sales of local artisanal products) initiated. 3. Household survey for all participants designed so that time spent on activities is being recorded and be can be analysed as project proceeds. 4. With 31 micro-enterprises initiated and average family size of 5 per participant, an estimated 155 participants are benefitting so far. This will be quantified in more detail by the household survey programme.	1. In Years 2 & 3 biodiversity monitoring will continue and be expanded to cover additional areas of regenerating rainforest in the Manu Biosphere Reserve buffer zones. 2.Delivery of the existing initiatives will be accelerated in Year 2 and local communities will choose a further 2 types of micro-enterprise initiative to be supported by the project in Years 2 & 3. 3. Household surveys will be carried out with all new participants and follow up annual surveys will carry on with existing participants. 4. Household surveys will be continued to document number of beneficiaries.
Output 1. Quantification of the potential for micro-enterprise to reduce unsustainable use,	1. The proportion of working time participants spend on sustainable activities and micro-enterprise initiatives	The annual household surveys have been designed to allow us to capture data on the proportion of time participants spend on sustainable activities and micro-enterprise initiatives.	

or exploitation of primary rainforest forest habitat.	2. The proportion of working time participants spend away from their own land for activities linked to unsustainable exploitation or primary rainforest.	By assessing how much time participants spend on sustainable activities and micro-enterprise initiatives we will be able to assess how much of their time is available to spend on alternative activities. The household surveys will also measure other ways that participants spend their time in order to get an accurate picture of the proportion of working time participants spend away.
Activity 1.1 Recruitment of participants for agroforestry and other micro-enterprise initiatives		Recruited 11 agroforestry participants and 20 biogarden participants for the micro-enterprise initiatives (31 micro-enterprises in total). Interviewed 4 local tourism professionals to identify potential participants in support initiatives and to assess local tourism needs in training, experience, and opportunities. This will inform the development of a Tourism Pasantia (works placement) programme to be completed in May-July 2016 Developed an agreement with local artisans, young people from native communities represented by local NGO Chaskawasi, to provide a sales platform and sales advice at the Manu Learning Centre with a feedback mechanism for their products. These initial developments will lead to artisan based micro-enterprises being one of the local community selected micro-enterprise initiatives being supported by the Sustainable Manu project in years 2 & 3.
Activity 1.2 Measure initial unsustainable use of primary forest by local participants and ongoing levels of sustainable and unsustainable activities		Designed and tested the household survey that will capture data on participant activities each year. The survey will be conducted with all new participants at the point of incorporation into the project, and then on an annual basis once a participant has been enrolled in the project.
Activity 1.3 Measurement involvement with, income and welfare benefits of microenterprises		To support household survey data, tested and developed innovative methods for collecting income data (via production monitoring) from biogardens using staff-led survey sheets, participant self-survey sheets, and camera traps to record weights and measures as well as estimate time spent in biogardens. Will continue through project. Reviewed past and current data collection methods and conducted a review of agroforestry income (via production and tree timber and carbon stock) measurement literature. Improved methods for data collection were developed. To be tested and finalised in April-June 2016 and rolled out from July 2016. Created a staff position dedicated to support and facilitate sales of local produce with all entrepreneurs supported through the programme. Engaged in discussion and general support of individual entrepreneurs and their micro-enterprises to understand their personal motivations and build relationships.

Output 2. Increased knowledge within the community of sustainable practices, natural land management, entrepreneurial skills, eco-tourism and local genetic resources.	1. The number of students enrolled on natural land management, eco-tourism, entrepreneurial and environmental awareness courses. 2. The knowledge of local participants of sustainable practices, natural land management, entrepreneurial skills, eco-tourism and local genetic resources. 3. Creation of micro-enterprise initiatives using knowledge and skills delivered by project training initiatives.	1. 12 students enrolled in the land management course and additional students in other courses. 2. Increasing knowledge of sustainable practices and land management through delivery of land management modules and practical application in developing micro-enterprises. A Monitoring Plan for all training and workshop activities was produced. It will be used to demonstrate the short-, mid-, and long-term knowledge retention and uptake from training, as well as the satisfaction of participants, through knowledge testing, observations, and focus groups. The monitoring plan will be used from April 2016. 3. Provided training and skills development for the initial 31 micro-enterprise initiatives supported (11 agroforestry and 20 biogarden).
Activity 2.1 Delivery of Natural Land Management course		Delivered 4.5 modules of course with technical institute. Developed new relationships with other local educational institutes.
Activity 2.2 Development of Entrepreneurial Module		Developed a training plan for delivering 6 Business Idea Sharing workshops (3 workshops each delivered twice), 12 Business Planning workshops (6 workshops each delivered twice) and ongoing individual business support, to be delivered from April 2016. Identified and budgeted a business start-up seed fund of $1000 each to support the development of 2 excelling business plans, identified through these workshops, to be awarded in December 2016.
Activity 2.3 Deliver training workshops supported by expert partners		Facilitated seed harvest and storage workshop with 10 attendants interested in developing sustainable forest seed sales micro-enterprises Gathered information on the propagation of native food plants from specialist as well as built up a small seed stock to support agroforestry enterprises.
Output 3. Increased participation in sustainable micro-enterprises and associated increased incomes within the local community.	1. The number of people benefitting from the micro-enterprise initiatives. 2. The number of agroforestry plots, biogardens and micro-enterprises. 3. Income generated through sales of produce etc through the local Manu Cooperative that the project helps set up.	1. In the first year there have been an estimated 155 people directly benefitting from the micro-enterprise initiatives (based on an initial project estimate of an average 5 people per household, which will be refined based on the household survey data) and 159 people have so far been trained by the project. The number of beneficiaries are expected to accelerate significantly in years 2 and 3 as those trained in the first year initiate their own micro-enterprises). 2. 20 Biogarden enterprises and 11 agro forestry enterprises are underway there are additionally a number of local artisans from the Chaskawasi people working on crafting local goods for sale under the agreement with their NGO. Also, many of the people trained have been invited to bring their micro enterprise ideas to the series of 3 Designed Business training and support strategy featuring Business

		Idea Sharing Workshops, 6 Business Planning Workshops, and unstructured business support sessions that will start from April 2016 so we expect to be able support acceleration of the launching of further enterprises in years 2 & 3. 3. Sales income and the development of the Cooperative support will be monitored as the enterprises start to sell produce and goods in years 2 & 3.
Activity 3.1 Training initiatives and workshops on micro-enterprises		Reviewed and improved biogarden and cooking workshop design (first trialled in project pilot work) to maximise participation and engagement - increasing the likelihood of knowledge uptake and impact. Developed an improved format for workshops which was tested during year 1 of the project. Using this format, workshop attendance more than doubled. Delivered 3 biogarden basic knowledge workshops to a total 23 participants. Facilitated 5 cooking workshops (aimed to help participants and other local people benefit from the wider range of vegetables the biogardens can grow) led by the chef from a local tourism lodge, to a total 55 participants. Designed Business training and support strategy featuring 3 Business Idea Sharing Workshops, 6 Business Planning Workshops, and unstructured business support sessions. To be delivered from April 2016. Designed training scheme for local forestry students to gain experience through working as agroforestry technical advisors.
Activity 3.2 Provide technical support and materials for creation of micro-enterprises		Provided ongoing one-on-one technical support to 11 agroforestry entrepreneurs. Provided ongoing one-on-one technical support to 20 biogarden entrepreneurs
Activity 3.3 Develop micro-finance support system for micro-enterprises		In year 1 of the project, a trial position was set up as a sales representative for biogarden entrepreneurs to enable them to sell produce to a local tourism lodge on a regular basis. The process for ensuring sales are fair and efficient was developed and refined and the project has now created a permanent staff position as a local sales representative for all entrepreneurs supported by the project. This position will begin in April 2016 and the selected staff member will ensure strong links and regular and ethical sales of produce to a local tourism lodge and will begin the development of a cooperative during year 2 of the project.
Activity 3.4 Setup community co-operative to support agroforestry and biogarden businesses		As noted above support for setting up has started and will be developed on in years 2 & 3.

Output 4. Increased knowledge of biodiversity conserved through rainforest regeneration and how high priority conservation species use regenerating rainforest, shared through scientific papers and environmental education to local and international audiences.	1. The number of high conservation priority species and amount of biodiversity found in regenerating rainforest. 2. The number of participants involved in environmental and biodiversity education courses and activities and the knowledge they display afterwards. 3. The number of submitted and published papers, reports and other educational resources produced as a result of biodiversity monitoring.	1. Biodiversity monitoring surveys have been initiated for the 44 high conservation priority bird and mammal species known in the Manu area. Additionally, survey of 7 indicator taxa (birds, mammals, amphibians, reptiles and butterflies, dung beetles and orchid bees) is underway in the regenerating rainforest of 3 key zones of the Manu Biosphere Reserve buffer zones. Dung beetles and orchid bee assessment represent additional outputs to the original application and have been chosen for their ability to indicate ecosystem services and health of rainforest environments. 2. A very wide range of environmental and biodiversity education activities have been successfully undertaken and these are detailed below. 3. One paper on 'How much potential biodiversity and conservation value can a regenerating rainforest provide' has been submitted and published in the international scientific journal Tropical Conservation Science. A number of other reports and papers aimed at communicating the importance of regenerating rainforest and its biodiversity are also being developed.
Activity 4.1 Survey and data collection on regenerating rainforest biodiversity		Biodiversity monitoring surveys have been initiated for the 44 high conservation priority bird and mammal species known in the Manu area. Additionally survey of 7 indicator taxa (birds, mammals, amphibians, reptiles and butterflies, dung beetles and orchid bees) is underway in the regenerating rainforest of 3 key zones of the Manu Biosphere Reserve buffer zones.
Activity 4.2 Development of environmental education materials on biodiversity and its value in the Manu area		Developed the design of a Real Forest Experience workshop, aimed at teaching local students about the value of biodiversity and sustainable development based on experiences while in the rainforest. Started work on a series of biodiversity guides (on amphibians, reptiles and butterflies) that when finished will be used as environmental education teaching aids and to enable ecotourism guides to introduce lesser known aspects of Manu's incredible biodiversity to their clients.
Activity 4.3 Biodiversity value and environmental education awareness workshops for local community and conservation managers in Manu		Delivered 6 Real Forest Experience workshops - experiential workshops held in and around a local research station with young people from the local high school (dates: 2nd May, 13th June, 18th July, 4th Sept, 12th Sept, 10th Oct). During year1 of the project a total 35 children and 4 teachers attended the workshops and each took part in 4 hours of biodiversity research with trained research staff as well as engaging in other activities such as viewing presentations on biodiversity and learning about different perceptions of the forest from international staff and volunteers. Facilitated a 4-day workshop for 11 Students from the San Isidro School. The workshop focussed on using butterflies as a teaching tool to teach the importance of biodiversity and the influence of human disturbance on forest ecosystems.

	Participated in the local Banana fair, 18-20 September. Delivered workshops on the importance of biodiversity and on food webs with 60 local children and conducted a public taste test to demonstrate the quality and value of organically grown produce with 60 local participants.
Activity 4.4 Talks, presentations and scientific communication of biodiversity results to local, national and international audiences	Engaged over 541,000 international individuals in conservation and sustainable development issues through views on videos posted on social media channels Facebook and Youtube. Gave 37 presentations on Manu National Park, local conservation issues and biodiversity data to a total of 116 Peruvian and international tourists. Gave 7 presentations to 5 expedition groups (British Exploring Society, Glasgow University, Exeter University, Deakin University, and Reaseheath College) giving a more in depth perspective on the Sustainable Manu Project conservation intiative, research methodologies and results to a total 146 individuals, primarily students. 145 international volunteers and 2 Peruvian pasantias (work experience) were trained in conservation research methods as well as given monthly research results presentations, monthly debates on local conservation issues (e.g. mining, expansion of the road, and oil), frequent project specific discussions, and bi-monthly sustainability discussions. Presented 2 talks at a national tour guide conference organised by the Peruvian national authority in charge of protected areas to around 80 tour guides on 1) the nature of eco-tourism in Manu National Park and how guides can use experiential learning to inform and inspire and 2) how different land-use within the buffer zone influences the biodiversity of the region. Attended the international Biodiversity and Conservation of the Tropical Andes and the Amazon Rainforest conference in Lima, Peru in October 2015. Presented a talk on 'Amphibian communities of the Piñi-Piñi range (Manu Biosphere Reserve, Peru)' and two posters on 'Feeding ecology of the common woolly monkey' and 'Habitat selection of an undescribed species of poison dart frog in the Peruvian Amazon'. Gave an international presentation on the Woolly monkey, one of Manu's key threatened species at the Rufford Conference
Activity 4.5 Writing of reports and scientific papers on the value of regenerating rainforest biodiversity	First scientific paper written to communicate the importance of rainforest regeneration for biodiversity. Paper titled: How much potential biodiversity and conservation value can a regenerating rainforest provide? A best-case scenario approach from the Peruvian Amazon. A Whitworth, R Downie, R von May, J Villacampa, R MacLeod., 2016, accepted and then published in Tropical Conservation Science March 2016. Several other papers and reports on other aspects of biodiversity and its conservation are under development.

Output 5. Delivery of a practical, evidence-based, implementable strategy to Manu Biosphere Reserve community documenting the potential for rainforest biodiversity conservation through sustainable development linked to rainforest regeneration.	1. Completion and submission to conservation decision makers in Manu and Peru of a written strategy for integrated biodiversity and sustainable development around the Manu Biosphere Reserve 2. Presentation of project results to conservation managers and decision makers	1 & 2. Due for delivery in final year of Sustainable Manu project.
Activity 5.1 Collate the evidence on the conservation, sustainable development and educational gains made during the project		Due for delivery in final year of Sustainable Manu project.
Activity 5.2 Write a strategy document for the Manu area outlining how rainforest regeneration and sustainable development could be used to impact biodiversity conservation		Due for delivery in final year of Sustainable Manu project.
Activity 5.3 Present strategy to the Manu conservation community, Peruvian government and future funders		Due for delivery in final year of Sustainable Manu project.
Activity 5.4 Finish!		Due for delivery in final year of Sustainable Manu project.

Annex 2 Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Determine the value of rainforest regeneration for catalysing biodiversity conservation and sustainable development in human-use zones of Manu Biosphere Reserve, so validating a widely applicable, collaborative solution to biodiversity loss.			
Outcome: Demonstrate to the conservation community how rainforest regeneration can deliver high-priority biodiversity conservation and enhanced livelihoods for communities currently dependent on unsustainable exploitation of rainforest habitat in Manu Biosphere Reserve.	1. The number and relative abundance of species of high biodiversity conservation priority, and the species richness of other indicator biodiversity, using and relying on regenerating rainforest. 2. The type and number of rainforest regeneration and sustainable micro-enterprise initiatives successfully initiated by participants trained during the project. 3. The proportion of time participants spend involved in new sustainable micro-enterprise activities, compared to time spent exploiting surrounding primary rainforest habitat. 4. The number of people directly benefiting from each micro-enterprise initiative and the amount by which income changes for each participant.		Local community and conservation managers remain receptive to micro-enterprise approaches, to combining conservation and sustainable development goals and to project staff. Natural disasters don't impede access to the project area for lengthy periods (many weeks). Major national or international political instability doesn't cut transport links.
Output 1. Quantification of the potential for micro-enterprise to reduce unsustainable use, or exploitation of primary rainforest forest habitat.	1. The proportion of working time participants spend on sustainable activities and micro-enterprise initiatives *By year 3, we expect involvement in micro-enterprises will take > 50% of beneficiaries time for half of those involved and >20% of time for the remaining beneficiaries.*	Annual household surveys of participants. Team leader reports (including photographic evidence) on condition and outputs of agroforestry plots and biogardens etc will provide independent verification of how much time is being spent on these activities as we know from pilot studies approximately how much time is keep plots etc well maintain and how much	

	2. The proportion of working time participants spend away from their own land for activities linked to unsustainable exploitation or primary rainforest. *By year 3 we expect time spent on activities associated with unsustainable use of the rainforest to reduce by 50 to 90% depending on participants' involvement.*	effort is required to produce specific outputs from micro-enterprises.	
Output 2. Increased knowledge within the community of sustainable practices, natural land management, entrepreneurial skills, eco-tourism and local genetic resources.	1. The number of students enrolled on natural land management, eco-tourism, entrepreneurial and environmental awareness courses. *By year 3, 60 full time students enrolled in local technical institute courses supported by project and participating in entrepreneurial and environmental awareness courses.* 2. The knowledge of local participants of sustainable practices, natural land management, entrepreneurial skills, eco-tourism and local genetic resources. *Annual retention of sustainable practices, entrepreneurial skills etc based on annual house hold knowledge surveys of participants and based on regular assessments of skills and knowledge being utilised by participants in their micro-enterprise initiatives.* 3. Creation of micro-enterprise initiatives using knowledge and skills delivered by project training initiatives. *The creation by year 3 of 110 micro-enterprises based on knowledge of*	Annual household surveys of participants who receive training and support in developing micro-enterprise initiatives. Accounts of local co-operatives selling produce Annual household questionnaire surveys, project training records and accounts of local co-operatives selling produce	

	sustainable practices, natural land management, entrepreneurial skills, etc.		
Output 3. Increased participation in sustainable micro-enterprises and associated increased incomes within the local community.	1. The number of people benefitting from the micro-enterprise initiatives. *550 people directly benefiting from micro-enterprise initiatives, including 250 from agroforestry initiatives and a further 300 people trained in or working on micro-enterprise initiatives by the end of 3 years*. 2. The number of agroforestry plots, biogardens and micro-enterprises. *By end of project 50 agroforestry enterprises carried out by local men, 30 biogarden enterprises run by local women, 15 eco-tourism guide enterprises, and 15 enterprises generating income from the 3 further micro-enterprise initiatives which the local communities choose to receive training in during the year 1 of the project.* 3. Income generated through sales of produce etc through the local Manu Cooperative that the project helps set up. *By year 3, sales through cooperative from the projects 6 types of micro-enterprise initiative to represent at least 20% of baseline income measured before participants receive training.*	Annual household surveys of participants. Team leader reports (including photographic evidence) on condition and outputs of agroforestry plots and biogardens etc will provide independent verification of how much time is being spent on these activities as we know from pilot studies approximately how much time is keep plots etc well maintain and how much effort is required to produce specific outputs from micro-enterprises. Annual household surveys of participants who receive training and support in developing micro-enterprise initiatives. Accounts of local co-operatives selling produce Annual household questionnaire surveys, project training records and accounts of local co-operatives selling produce	
Output 4. Increased knowledge of biodiversity conserved through rainforest regeneration and how high priority conservation species use regenerating rainforest, shared through scientific	1. The number of high conservation priority species and amount of biodiversity found in regenerating rainforest. *By 2.5 years, 80% of Manu's 44 high conservation priority bird and mammal detected using regenerating rainforest and the relative abundance of each in*	Project GIS database containing all biodiversity distribution and abundance data collected during project, annual project reports, published papers on biodiversity.	

papers and environmental education to local and international audiences.	*the 3 project focal areas documented. Document the species richness of 3 further indicator taxonomic groups (amphibians, reptiles and butterflies) in regenerating forest.* 2. The number of participants involved in environmental and biodiversity education courses and activities and the knowledge they display afterwards. *By end of year 3, 300 participants involved in project biodiversity and environmental workshops and educational activities, with knowledge gains monitored by questionnaires.* 3. The number of submitted and published papers, reports and other educational resources produced as a result of biodiversity monitoring. *5 papers submitted (and 3 accepted) by peer reviewed scientific journals before end of project. Annual reports to Manu National Park managers documenting the abundance of the 5 key mammal conservation targets in the Manu NP monitoring plan (Spider Monkey, Woolly Monkey, Jaguar, Tapir and Peccary) in regenerating rainforest forest. Three educational resources covering identification of Manu's key biodiversity.*		
Output 5. Delivery of a practical, evidence-based, implementable strategy to Manu Biosphere Reserve community documenting the potential for rainforest biodiversity conservation through sustainable development linked to rainforest regeneration.	1. Completion and submission to conservation decision makers in Manu and Peru of a written strategy for integrated biodiversity and sustainable development around the Manu Biosphere Reserve *A written technical report that; 1) Records, captures and assesses the evidence collected by the Sustainable Manu demonstration project on the potential for rainforest biodiversity*	Project GIS database containing all biodiversity distribution and abundance data collected during project, annual project reports, published papers on biodiversity.	

	conservation through sustainable development linked to rainforest regeneration and 2) Presents a costed strategy for catalysing biodiversity conservation through rainforest regeneration and sustainable micro-enterprise across the human-use zones of Manu Biosphere Reserve so that large scale funding can be sought for its implementation. 2. Presentation of project results to conservation managers and decision makers *In the final 3 months of the project staff present the project results at workshops with a) Manu National Park staff, b) local communities, c) conservation NGOs working in Manu and d) government departments.*		

Activities

Activity 1.1 Recruitment of participants for agroforestry and other micro-enterprise initiatives

Activity 1.2 Measure initial unsustainable use of primary forest by local participants and ongoing levels of sustainable and unsustainable activities

Activity 1.3 Measurement involvement with, income and welfare benefits of microenterprises

Activity 2.1 Delivery of Natural Land Management course

Activity 2.2 Development of Entrepreneurial Module

Activity 2.3 Deliver training workshops supported by expert partners

Activity 3.1 Training initiatives and workshops on micro-enterprises

Activity 3.2 Provide technical support and materials for creation of micro-enterprises

Activity 3.3 Develop micro-finance support system for micro-enterprises

Activity 3.4 Setup community co-operative to support agroforestry and biogarden businesses

Activity 4.1 Survey and data collection on regenerating rainforest biodiversity

Activity 4.2 Development of environmental education materials on biodiversity and its value in the Manu area

Activity 4.3 Biodiversity value and environmental education awareness workshops for local community and conservation managers in Manu

Activity 4.4 Talks, presentations and scientific communication of biodiversity results to local, national and international audiences

Activity 4.5 Writing of reports and scientific papers on the value of regenerating rainforest biodiversity

Activity 5.1 Collate the evidence on the conservation, sustainable development and educational gains made during the project

Activity 5.2 Write a strategy document for the Manu area outlining how rainforest regeneration and sustainable development could be used to impact biodiversity conservation

Activity 5.3 Present strategy to the Manu conservation community, Peruvian government and future funders

Activity 5.4 Finish!

Annex 3 Standard Measures

Table 1 Project Standard Output Measures[2]

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
6A	Number of people to receive other forms of education/training			600				
7	Number of training materials to be produced for use by host country			2				
11A	Number of papers published			4				
12A	Number of computer based databased established			1				
14B	Number of conferences etc attended			1				
20	Estimated value of physical assets handed over to host country			£14k				
22	Number of permanent field plots established			31				

[2] These data are extracted from Annex 1 & 5 and represent a minimum output – the real values will likely be higher than those quoted and will be adjusted in future reports.

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g.weblink or publisher if not available online)
Out on a limb: Arboreal camera traps as an emerging methodology for inventorying elusive rainforest mammals	Journal	Andrew Whitworth, Laura Dominie Braunholtz, Ruthmery Pillco Huarcaya, Ross MacLeod and Christopher, June 2016	M	UK	BeirneTropical Conservation Science 9(2):675-698 ·	www.researchgate.net/publication/304465402
Past Human Disturbance Effects upon Biodiversity are Greatest in the Canopy; A Case Study on Rainforest Butterflies	Journal	Andrew Whitworth, Jaime Villacampa, Alice Brown, Ruthmery Pillco Huarcaya, Roger Downie, Ross MacLeod, March 2016	M	UK	PLoS ONE 11(3) ·	www.researchgate.net/publication/297240261
How much potential biodiversity and conservation value can a regenerating rainforest provide? A 'best-case scenario' approach from the Peruvian Amazon	Journal	Andrew Whitworth, Roger Downie, Rudolf von May, Jaime Villacampa, and Ross MacLeod, March 2016	M	UK	Tropical Conservation Science 9(1):224-245	www.researchgate.net/publication/299455395
A first test of the thread bobbin tracking technique as a method for studying the ecology of herpetofauna in a tropical rainforest	Journal	Emily Waddell, Andrew Whitworth, and Ross Macleod, January 2016	F	(?)	Herpetological Conservation and Biology 11(1):61–71	www.researchgate.net/publication/301779428
Reptile reproduction	Blog	Manu Website				http://www.crees-manu.org/new-research-reproduction-little-known-amazonian-reptiles/
Tree Top Manu Paper	Blog	Manu Website				http://www.crees-manu.org/new-scientific-paper-canopy-camera-traps-reveal-secretive-wildlife
Wooley Monkey Feeding habits	Blog	Manu Website				http://www.crees-manu.org/peruvian-woolly-monkey/
Bobbin-tracking reptiles	Blog	Manu Website				http://www.crees-manu.org/new-paper-innovation-in-tropical-herp-monitoring/
Research paper summary	Blog	Manu Website				http://www.crees-manu.org/research-papers-manu-national-park/

Annex 4: Sustainable Manu Darwin Initiative Monitoring and Report Framework (appended)

Annex 5: Sustainable Manu Project Logical Framework (appended)

Annex 6: Project micro-enterprise participants (appended)