



Darwin Initiative Annual Report



DARWIN200

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders – it is expected that this report will be about 10 pages in length, excluding annexes
Submission deadline 30 April 2009

Darwin Project Information

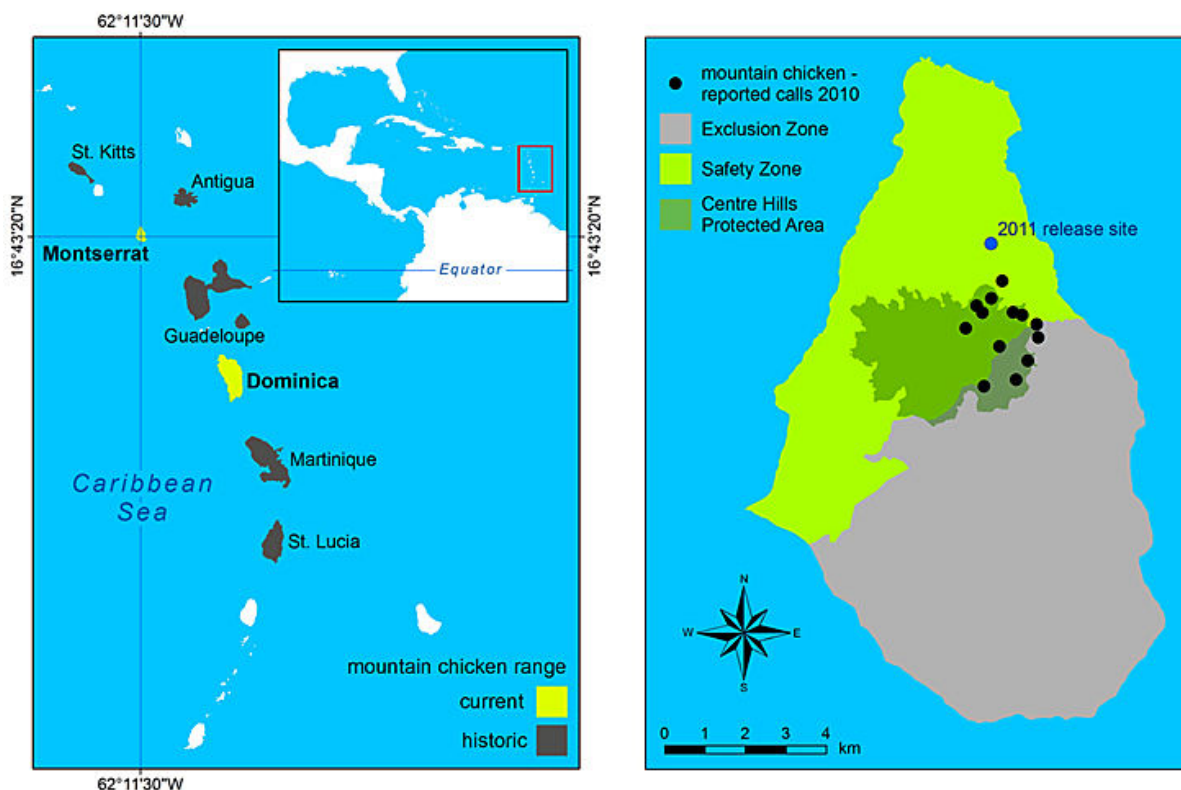
Project Ref Number	18018
Project Title	Enabling Montserrat to Save the Critically Endangered mountain chicken
Country(ies)	Montserrat
UK Contract Holder Institution	Durrell Wildlife Conservation Trust
Host country Partner Institution(s)	Department of Environment, Ministry of Agriculture, Land, Housing and Environment, Montserrat (DoE)
Other Partner Institution(s)	Zoological Society of London
Darwin Grant Value	£232,484
Start/End dates of Project	1 st July 2010 to 30 th June 2013
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 st July 2010 to 31 st March 2011 Annual report #1
Project Leader Name	Matthew Morton
Project website	www.mountainchicken.org (development address: www.mchicken.zslblogs.org)
Author(s) and main contributors, date	Sarah-Louise Smith, Matthew Morton, Andrew Terry, Lloyd Martin 30 th April 2010

1. Project Background

Once found on seven islands, the mountain chicken frog *Leptodactylus fallax* (Critically Endangered, IUCN) is now restricted to Montserrat and Dominica, where it has declined through historical habitat destruction and hunting. However, the emergence of the disease chytridiomycosis (chytrid), caused by the fungus *Batrachochytrium dendrobatidis*, in 2002 in Dominica caused catastrophic declines of 80% within 18 months of being detected. Following this the Mountain Chicken Species Action Plan, (2007, OTEP funded) prioritised biosecurity at the ports of entry in Montserrat to stop chytrid arrived on the island. Despite these efforts, chytrid was discovered on Montserrat in February 2009 by the Department of Environment. Emergency missions by Durrell Wildlife Conservation Trust (Durrell) and Zoological Society of London (ZSL) in March/April 2009 found losses were severe, with only one population in the upper reaches of a single watershed being disease-free. In May 2009, 50 uninfected frogs were evacuated to an *ex-situ* captive breeding programme at Durrell (Jersey), ZSL (London), and Parken Zoo (Sweden). In July 2009, chytrid arrived in the last healthy mountain chicken population with the deaths of many frogs.

The goal of this project is to enable Montserrat to safeguard the future of the mountain chicken by: 1) establishing the evidence-base on mountain chicken and chytrid ecology in Montserrat; 2) developing a long-term restoration plan and steering committee, 3) developing a reintroduction and adaptive management plan and 4) generating pride and understanding among Montserratians in the restoration of this species and communicating essential bio-security management information. It sits within a longer-term Mountain Chicken Restoration Programme, a collaboration between the Governments of Montserrat and Dominica, Durrell, ZSL and two additional breeding institutions, Parken Zoo (Sweden) and Chester Zoo (UK).

When the project was first planned, the goal was to initiate a series of trial releases of frogs to an isolated area of the island. The team hypothesised that this area could be free from the disease because it was isolated by the pyroclastic flow from the volcano and therefore there was no connection for amphibians or moving water into the area from the known infected zone within the Centre Hills. However after the project was awarded and before it began in July 2010, a mission (May 2010) to test this hypothesis found the disease present within tree frogs. Therefore there were no chytrid free areas on the island. This caused us to change our plans and while the core objectives of the Darwin project remained unchanged, some of the activities were revised and plans for an experimental release of frogs into the Centre Hills were prepared.



Global distribution of mountain chicken (left) and evidence of remaining population on Montserrat in 2010, showing 2011 release site. The remaining population currently appears to be very small and at low densities.)

The major change was to bring forward the planned trial releases (Year 2) into Year 1, based in part on the success of the captive breeding programme and the need to better understand the success factors to releasing mountain chickens. This decision was approved by the Government of Montserrat. Thus during the first nine months, the team has focussed on setting up the project and establishing the necessary protocols for this release.

Releasing frogs into chytrid positive areas is a contentious move that was carefully assessed and consulted with partner organisations, the IUCN Reintroduction Specialist Group and DEFRA. Although mortality from chytrid is to be expected, we also predict that a proportion of this release population will survive and breed. Our aim is to identify those factors – such as age-at-release cohorts and release season (wet vs. dry) – under our control that optimize future release and maximize our chances of establishing a viable *in situ* population of mountain chickens. Intensive monitoring of the release allows us to examine the effect of these factors on health status, habitat use and breeding and on the survival probabilities of a released population in the face of chytrid. Simultaneously, we are monitoring the health status of the remaining mountain chicken population in Montserrat. We are attempting to estimate the size of this population and its distribution, though its small size and relatively remote location makes this challenging. In addition, we are monitoring background prevalence of chytrid in the environment by sampling putative vector species (non-native amphibians).

We are currently part-way through the first year of this project, but later in 2011 we anticipate being able to document some breeding success in the release population, which is also to be augmented with a second release later this year in Montserrat's wet season.

2. Project Partnerships

The Durrell Wildlife Conservation Trust (Durrell) provides project leadership from Mr. Matthew Morton, based in Saint Lucia, with day to day project management in Montserrat from Ms. Sarah-Louise Smith, Project Coordinator. Durrell provides technical support from Drs. Richard Young (research design), Gerardo Garcia (herpetology and captive management), Javier Lopez (veterinary science) and Andrew Terry (project management and oversight), both in the UK and (from Drs. Garcia and Lopez) in the field. The in-country project leader is Mr. Gerard Gray, Director of Montserrat's Department of the Environment (DOE, in the Ministry of Agriculture, Housing, Lands and the Environment, MAHLE). The Project Coordinator based in Montserrat is contracted to DOE and works closely with her departmental colleagues on all aspects of project delivery. DOE provide invaluable governmental backing to the project, with field and administrative support from DOE staff and inter-departmental linkages such as to the Physical Planning Unit (for GIS support) and the Veterinary Department of MAHLE. Durrell and DOE have collaborated for over 10 years prior to this project on biodiversity conservation initiatives in Montserrat.

Other project staff in Montserrat are Mr. Lloyd Martin (DOE) and Mr. Calvin Fenton. Lloyd shadows Sarah-Louise closely on all aspects of project management and implementation and manages deployment of DOE's resources on this project, reporting to Mr. Gray. Lloyd and Calvin have many year's field experience in biodiversity conservation in Montserrat. Calvin is the project's Primary Field Assistant and brings a wealth of local understanding to the field activities.

A Montserrat-based Project Steering Committee brings together in-country stakeholders, with representatives from Government, local NGO the Montserrat National Trust, local landowners, Montserrat's animal welfare society and the Montserrat Tourist Board, meeting quarterly, with input from overseas partners, to provide advice and guidance to the project team. Two governmental representatives from Dominica also serve on the PSC: Mr. Minchinton Burton (Director, Forestry, Wildlife & Parks) and Dr. Reginald Thomas (Chief Veterinary Officer).

Participation of the Zoological Society of London is led by Dr. Andrew Cunningham, Head of Wildlife Epidemiology and Deputy Director of the Institute of Zoology. He provides technical guidance on epidemiology from the UK, which builds on previous experience through the Darwin funded project (Ref 13032) on chytridiomycosis in the Eastern Caribbean. All swabs of taken from frogs in the wild are analysed for the presence of chytrid by ZSL's laboratory in London, partly with Darwin funding and ZSL co-funding.

This project forms a major component of a larger collaboration between the Governments of Montserrat and Dominica, Durrell, ZSL, North of England Zoological Society (Chester Zoo) and Parken Zoo called the Mountain Chicken Recovery Programme (MCRP). For more information on this collaboration and on the project team go to www.mountainchicken.org/partnership/team/

3. Project progress

3.1 Progress in carrying out project activities

Output 1. The evidence base for the restoration of the mountain chicken and mitigation of the impacts of chytrid is established.

1.1 Establishment of project basis and staff in Montserrat

The Project Coordinator, Sarah-Louise Smith, was successfully recruited following an open application process led by Durrell and the Government of Montserrat. The coordinator was in post from October 2010 and has been employed as a MAHLE staff member based within the Department of Environment offices.

Montserratian staff from within the Department of Environment have been brought into the project. A contract for the primary field assistant, Mr. Calvin Fenton, was signed and he works primarily on the project using his knowledge and experience with the species and forests of Montserrat. The research officer has been identified and is working closely with the project coordinator on the design and implementation of field and technical activities.

This role has been adapted as MSc level training is not appropriate due to no staff within the Forestry department in Montserrat possessing a degree. Therefore Durrell will design an alternative programme of training for year two of the project. Other DOE staff work within the fieldwork timetable and participate in project activity planning through monthly meetings. Two volunteers were recruited to provide additional temporary assistance following the January 2011 release of mountain chickens (see below) are due to continue with project fieldwork and data management until the end of April 2011. A 2004 Nissan Nivara project vehicle has been procured for the project along with a laptop and GPS receivers; the Government of Montserrat has supplied office and GIS software. A PSC has been established in Montserrat and meets quarterly. Dominican representatives also serve on this Committee.

1.2 Research prioritisation exercise

The prioritisation process is being led by Durrell's Head of Conservation Science, Richard Young, and ZSL's head of Wildlife Epidemiology, Andrew Cunningham, and started by identifying key questions concerning the behaviour and ecology of mountain chickens, the transmission dynamics of the disease and also approaches to treating the disease. A preliminary set of priorities was presented to the MCRP Steering Group meeting held at ZSL in February 2011, which also had input from Trent Garner, Senior Research Fellow in Wildlife Epidemiology at ZSL.

The research priorities for fieldwork in Montserrat fall into three areas: (1) Explaining the persistence of small populations of mountain chickens on Montserrat after the island has been exposed to chytrid. (2) Evaluating the success of trial releases of captive-bred mountain chickens into Montserrat and determining the factors under our control that optimize this success. (3) Understanding background levels of chytrid in Montserrat; in practice this means chytrid load in non-native amphibian species (cane toads, *Rhinella marina* and tree frogs *Eleutherodactylus johnstonei*). These research areas endorsed by the PSC and are all currently implemented in Montserrat. They are detailed in release manuals which are available for download from www.mountainchicken.org (see Annex).

Ex situ research priorities will be led by ZSL with a PhD funding proposal having been developed and submitted to donors to test whether exposure to a low virulence strain of chytrid will confer protection against exposure to the high virulence strain of the pathogen found on Montserrat and whether the skin surface bacterium *Janthinobacterium lividium* can confer any protection as has been shown in laboratory conditions for other species. Additionally, the project is collaborating with Dr Rhiannon Lloyd (ZSL) on the cryopreservation of mountain chicken genetic material to conserve existing genetic diversity for future breeding efforts.

1.3 Develop, test and implement population estimation method

The remaining wild population has been reduced to a few individuals, which are rarely encountered. At the start of the project local expert knowledge was used to develop a GIS on known surviving mountain chicken locations (based on records of calling individuals) and suitable candidate sites for additional surveys.

Former monitoring methods focussed on estimating population densities and so this project aimed at developing full population estimates, however monitoring options are not greatly

reduced by the number of surviving animals. Nonetheless, it remains very important to monitor survivors closely and so bi-weekly capture-mark-recapture (using PIT tags) surveys, health assessments and swabbing for chytrid is carried out at multiple sites. Future monitoring efforts will be augmented by the deployment of “frog loggers” (automated call recording stations) during the mountain chicken calling season early in 2011.

We are currently working with the Dominican Department of Forestry, Wildlife & Parks in developing similar protocols for deployment in Dominica under the ZSL-led mountain chicken project there.

1.4 Network of chytrid monitoring sites identified

Three sites have been chosen to monitor the background levels of chytrid by regularly sampling the tree frogs and cane toads; the two sympatric vector species. Of the three sites chosen, one is the site at which captive-bred mountain chickens were released this year which will allow us to monitor variations in chytrid level in response to the reintroduction of mountain chickens in that ghaat. Of the other two ghauts one contains a surviving mountain chicken population and the other is thought to be free of mountain chickens. All sites are located on the same side of the island to minimize effects of climate. The number of sites was limited to these three due to resource constraints as a result of concurrent activities and the capacity of laboratory processing in the UK for large numbers of samples. Each site is sampled monthly and strict biosecurity protocols are documented and observed. Data collected are collated into a spreadsheet and are made available online to all project partners (via www.dropbox.com).

1.5 Monitoring programme

Four survey sites on the eastern side of the Centre Hills have been identified and established under activity 1.3. These are a subset of the monitoring programme established by DOE in 1998, prior to chytrid reaching Montserrat. Survey techniques from that programme have been adapted and extended to include capture-mark-recapture (for population estimation) and health screening and will be further augmented later in 2011 with automated mountain chicken call recording. All field teams observe strict biosecurity and field methods are documented in the release protocol manuals (see Annex). Data is held in an online database that is regularly updated by project staff in Montserrat and available to all project partners in Montserrat, Dominica and Europe. Dominica's Department of Forestry, Wildlife & Parks have requested assistance from this project on the development search protocols for the small numbers of surviving mountain chickens in Dominica, an opportunity to standardize monitoring efforts across the whole of this species current global range.

Output 2. Trial re-introduction of mountain chickens into Montserrat completed.

2.1 Survey trips to candidate introduction sites

A proposed chytrid-free site at the far side of Montserrat's volcanic Exclusion Zone was surveyed for evidence of chytrid in 2010 and the disease was confirmed as being present in tree frogs. With chytrid confirmed island-wide, attention was focussed on identifying candidate sites within the Safety Zone as this is more accessible and hence easier to monitor. Candidate watercourses across the Safety Zone were allocated in a GIS and assessed through site visits to determine suitable habitat, seasonal water availability, access for monitoring and levels of introduced predators (assessment report available online; see Annex). Sites where mountain chicken calls were reported from 2010 were excluded to avoid disrupting any disease-frog equilibria that might exist and hence jeopardise the continued survival of mountain chickens at these sites.

2.2 Development of predator control programmes

Our site selection process indicated that introduced mammalian predators at the chosen mountain chicken release site were not at high levels. Non-native rats and feral (or domestic) cats are present but feral pigs are absent. Ongoing intensive monitoring of the released frogs

has thus far produced no evidence of predation by these species. A contingency predator control programme has been developed, based on prior rat control work by DOE and RSPB and, elsewhere in the Eastern Caribbean, by Durrell, but at present data do not justify implementing it. Detailed rat monitoring and potential control have been postponed until Year 2.

2.3 Development and approval of plans for trial introduction

Detailed protocols for all stages of a reintroduction have been developed and are available online (at [http://www.durrell.org.uk](#)). This activity will allow us to learn the optimal methods for effecting a successful release and the protocols have been developed as a working document that will be adapted using lessons learned from the first trial release in 2011 and subsequent releases. The release plan has been approved by the Government of Montserrat, IUCN's Reintroduction Specialist Group, DEFRA and Durrell's Ethics Committee. This activity was brought forward from Year 2 into Year 1 of the project. Additional funding from another donor was sought to cover the additional costs associated with this activity, and so it did not impact greatly on existing Darwin funding or activities. A second release is proposed to take place this August, in Year 2, which will utilise the Darwin support.

2.4 Release of mountain chickens

This activity has been brought forward following the unexpectedly high level of success of the *ex situ* programme, established in 2009, of breeding mountain chickens under biosecure conditions.

A total of 64 quarantine first generation captive-bred mountain chickens from Durrell and Parken Zoo were successfully released into the chosen release site in Montserrat's Centre Hills during the week of the 24th January 2011. All frogs transported from Durrell survived but 22 out of 23 frogs from Sweden died during transit. The cause of these deaths is still under investigation but appears to have occurred during transportation from Sweden to the UK before being grouped with animals coming from Jersey and sent onwards to Montserrat. A full investigation with the animal handling agents and transport companies has been initiated.

Biosecure holding facilities in Montserrat were constructed for the frogs for veterinary monitoring prior to release. Of the 64 mountain chickens released, 34 of these animals were tagged with surgically implanted radio-transmitters in order that they could be intensively monitored. The transmitters were implanted in Jersey by Durrell's Head of Veterinary Services, and the frogs kept under observation prior to being sent to Montserrat. Health status (including chytrid infection), predator impacts, survival and habitat use were all monitored. An additional release is planned for August 2011. This will exceed our aim to release 100 frogs by year of this project, both in terms of numbers of frogs and release schedule

2.5 Monitoring release success

The status and fate of released frogs is being monitored intensively. Survival and habitat use is recorded 6 nights per week and health assessments (including taking swabs to detect chytrid) takes place every 7-10 days. By radio-tracking over 50% of the released population the team has been able to maintain close contact with a large number of frogs. All frogs are PIT tagged and so, all individuals when encountered are assessed and their details and location stored in the GIS. Released frogs form four cohorts based on sex and age (bred in 2009 vs. bred in 2010) to allow us to examine the effect of these factors on frog survival. A subsequent planned release will allow us to include season (dry vs. wet) as a factor under our control and examine its effect on the success of these releases. To date, no released frogs are known to have succumbed to predation, although the cause of a single death remains unconfirmed. Three additional deaths have been recorded, all attributed to chytrid infection. These latter deaths coincided with an apparent change in frog behaviour in response to increasing severity of the dry season and dwindling availability of surface water. Formal analyses are pending.

Following the expiry of radio transmitters in April, monitoring has continued with site searches for frogs and, with the onset of frog calling, the deployment of automated call recorders. During the

wet season, juvenile frogs will also be searched for to confirm successful breeding by the released frogs.

2.6 Adaptive management plan for reintroduction and predator management

Not planned for this period.

Output 3. Long term restoration strategy for the mountain chicken established and agreed with regional partners.

3.1 Formation and meeting of regional steering committee

A Project Steering Committee (PSC) has been established containing members from various working backgrounds from Montserrat including the Director of the National Trust, the Director of the Montserrat Animal Protection Society (MAPS), a representative from Montserrat Tourist Board, and various land owners. Two representatives from Dominica, the Chief Veterinary Officer and the Director of Forestry are also members of the committee the purpose of which is to guide in project decision making but also to continue to advise on issues regarding the frogs in the context of the wider Mountain Chicken Recovery Programme; this programme will continue after the lifetime of this project. The PSC meets every quarter for an update on project progress and to discuss any issues that may have arisen between meetings, including matters tabled by overseas committee members. Extra meetings can also be called in between these quarterly meetings if required. The Director of Environment and project partners is currently drafting a terms of reference for this committee which will be reviewed by the committee and project partners before being finalised.

3.2 Review of regional captive breeding opportunities

ZSL have completed their review of the captive breeding facility in Dominica, established in an earlier Darwin Initiative project (ref 13032), and assessed it to be at operating capacity, albeit currently without a stock of mountain chickens. Jenny Spencer has been recruited to oversee the development and operation of the facility with her Dominican counterparts. A proposal to stock the facility with quarantined first generation captive-bred Montserrat mountain chickens has been reviewed and recommended by the PSC in Montserrat; and is now awaiting Ministerial approval in Montserrat. Once approved, a small number of captive-bred frogs, from the same stock released into Montserrat this year, will be transferred.

3.3 Training two Montserratian staff on DESMAN course

Not planned for this period.

Field training in monitoring techniques has, however, been initiated with most staff members at the DOE in Montserrat in radio-tracking techniques, use of radio-tracking equipment, biosecurity protocols, and field data collection training. In addition, DOE have identified a gap in IT skills amongst its staff and the project is providing on-the-job training in various aspects of IT such as the inputting of data into the Excel databases and the use of ArcGIS and DNR Garmin and for mapping GIS data collected in the field. (see Annex)

3.4 Development of long term restoration plan

Not planned to be completed this period. The process has started with the formation of the PSC and the integration of Dominican counterparts, which has not happened before. A draft plan will be developed at a workshop in Montserrat during the next period, many of its components having already been reviewed and recommended by the project PSC.

Output 4. The restoration of the mountain chicken is a source of national pride and benefits from long-term collaboration between national, regional and international partners.

4.1 Communication strategy completed

This activity is due to be completed during the next reporting period. The Project Coordinator and the Department of Environment's Outreach and Education Officer have agreed to develop a strategic plan for the completion of the public awareness campaign. Points of dissemination will be identified along with target audiences as part of raising awareness. This will include the delivery of school and community presentations and regular newspaper and radio announcements including quizzes / competitions along with the production of educational and communicative materials such as posters and drop leaflets. From this plan a communication strategy will be developed during further consultations between the project coordinator, research officer, DOE's education and outreach officer and the in-country project leader and a draft will be circulated among the project partners and submitted to the Project Steering Committee for comment. The in-country project leader and education and outreach officer managed the awareness raising campaign for another previous Darwin funded project: The Centre Hills project and therefore have great experience to contribute. Once completed this document will be printed and made available online.

4.2 Communications materials produced – posters, calypso

This activity is due to be completed during the next reporting period. On-island consultations suggest that an island calypso competition would be the most effective way of increasing public awareness of the project and that the best time of year to conduct this would be Christmas. More details regarding the calypso production will be highlighted in the communications strategy which will be developed during consultations with various DOE staff, including the in-country project leader who is a calypsonian writer

4.3 Schools presentations

Completion of this activity has been delayed by the bringing forward of the mountain chicken release and the workload demands that imposed. The Director of Education has approved a programme of presentations and an awareness raising programme within the islands schools and the head teachers of the three primary schools and the one secondary school in Montserrat have met with the Project Coordinator and been updated regarding project and the aims of the raising-awareness programme.

4.4 Behavioural and attitudes surveys and reporting

The aim of this activity was to conduct a baseline survey of attitudes at the beginning of the project and another at the end to gauge the impact of the project's education and communication activities. We have now completed baseline questionnaire surveys of 151 schoolchildren and their parents from three schools, the public library and the Montserrat National Trust to determine awareness of, and attitudes and the behaviours toward, the mountain chicken and chytrid. Initial results indicate a good level of general knowledge of the mountain chicken and some of the threats it faces but a lower level of knowledge of the chytrid fungus. This baseline will be used to assess the effectiveness of forthcoming communication strategy and outreach efforts.

3.2 Progress towards Project Outputs

Output 1. The evidence base for the restoration of the mountain chicken and mitigation of the impacts of chytrid is established

A network of field sites for monitoring the survival of remaining mountain chickens in Montserrat has been established, along with a network of sites to monitor background chytrid levels in putative vector species of non-native amphibians. Databases have been established in Excel spreadsheets and ArcGIS maps, and DOE staff are working alongside project members inputting and manipulating data (for example, planning field surveys in GIS from previously collected GPS data). Processing of swabs has yet to start, although gross symptoms of chytrid are monitored in the field. Analysis of data is planned for the next period.

Detailed protocols describing all field activities, and including full biosecurity and veterinary measures, have been produced as a series of manuals (available to view on www.mountainchicken.org) These are working documents that will be adapted over the lifetime of the project.

Our assumption about the availability of a suitable member of staff within MAHLE to undertake an MSc has proven incorrect. However this role has been adapted to include extensive on the job training and a commitment to residential training overseas in order to build capacity within the DOE to increase the projects sustainability.

Output 2. Trial re-introduction of mountain chickens into Montserrat completed.

Due to the release site being established as chytrid positive during the preliminary survey that took place before the project commenced, the first two assumptions for this output no longer apply: (1) the area within Montserrat's volcanic Exclusion Zone, believed to be a chytrid-free candidate site for frog releases, was determined to be contaminated; and (2) a partnership with the Montserrat Volcano Observatory is no longer required to plan access to this site. We believe our third assumption – that 50 founder frogs provide a sufficient basis for a long term captive breeding programme – still holds. To date, this breeding population has been more productive than anticipated. As a result, the first phase of the activity to release captive-bred mountain chickens into Montserrat was brought forward into this reporting period. A series of site visits assessed candidate sites to determine suitable habitat, seasonal water availability, access for monitoring and levels of introduced predators. Approval for the release has been given by the Government of Montserrat, Durrell's Ethics Committee, DEFRA and IUCN's Reintroduction Specialist Group.

A total of 64 mountain chickens were released in January 2011 (dry season) into a ghaut (watercourse) known to support a healthy population of mountain chickens pre-chytrid but devoid of frogs since 2009. To date, this first release of frogs has been successful. 50% of the released frogs were implanted with radio transmitters and have been under intensive monitoring. These frogs, and other non-radio-tagged frogs identifiable by PIT tags, have maintained their body condition and used their habitat as expected from earlier (pre-chytrid) observations of mountain chickens at this site. Four have died: one from undetermined causes (though unlikely to be chytrid) and two after having developed chytrid two months after their release. We are anticipating further casualties, but we also anticipate frogs surviving into the breeding season and reproducing later this year. A second (wet season) release is planned later in 2011. However survival of released animals has been extremely high and the project team has gained a significant insight into the habitat use of the radio-tracked animals. So the release has been a major success. We have found no evidence of predation by non-native mammals and so have not initiated a predator-control programme though a contingency plan has been developed.

Output 3. Long term restoration strategy for the mountain chicken established and agreed with regional partners.

This output will be delivered by the end of the project. The successful establishment of a multi-institutional *ex situ* breeding programme, including a regional facility in Dominica (assessed by ZSL and soon to be operational), has provided the framework for developing a longer term strategy as a part of the MCRP. This programme provides stock for releases of mountain chickens into Montserrat and for concurrent lab-based research into chytrid resistance in this species. A draft plan will be developed at a workshop in Montserrat during the next period, many of its components having already been reviewed and recommended by the project PSC.

We have built on existing DOE capacity to monitor mountain chicken populations so that it now routinely incorporates strict biosecurity measures at all field sites. Training in additional, more intensive, monitoring techniques such as health screening, swabbing and radiotracking, has been provided. For the next reporting period, two members of DOE staff have been identified to

attend training in amphibian biology and ecology at Durrell and we will send the Montserrat Research Officer to Dominica for *in situ* training with ZSL.

Output 4. The restoration of the mountain chicken is a source of national pride and benefits from long-term collaboration between national, regional and international partners.

This output has been delayed to accommodate bringing forward the release of captive-bred mountain chickens to year one. However, 151 baseline public awareness surveys have been completed. In addition, informal consultations have taken place with DOE and other stakeholders to start the process of planning this output. Since no assumptions exist for this output and the indicators are still considered accurate to date, there is a good indication that this output will be achieved by the end of project.

3.3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for this reporting period	Total planned from application
2	Number of people to attain Masters qualification (MSc, MPhil etc)	0					0	1
3	Number of people to attain other qualifications (ie. Not outputs 1 or 2 above)	0					0	2
4A	Number of undergraduate students to receive training	2					0	4
4B	Number of training weeks to be provided	10					8	16
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above)	0					0	1
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	4					0	5
6B	Number of training weeks to be provided	21					0	33
7	Number of (ie different types - not volume - of material produced) training materials to be produced for use by host country	1					1	1
8	Number of weeks to be spent by UK project staff on project work in the host country	9					8	12
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country	0					0	2
11A	Number of papers to be published in peer reviewed	0					0	3

	journals							
11B	Number of papers to be submitted to peer reviewed journals	0					0	3
12A	Number of computer based databases to be established and handed over to host Country	0					0	2
14A	Number of conferences/seminars/workshops to be organised to present/disseminate Findings	0					0	2
15A	Number of national press releases in host country(ies)	1					1	6
15B	Number of local press releases in host country(ies)	1					1	6
15C	Number of national press releases in UK	0					0	4
16A	Number of newsletters to be produced	0					0	4
17A	Number of dissemination networks to be established	0					0	1
18A	Number of national TV programmes/features in host country(ies)	0					0	1
19A	Number of national radio interviews/features in host county(ies)	2					2	6
19C	Number of local radio interviews/features in host country(ies)	2					2	6
22	Number of permanent field plots to be established during the project and continued after Darwin funding has ceased	5					5	5
23	Value of resources raised from other sources (ie in addition to Darwin funding) for project Work	55,500					55,000	171,000
New - Project specific measures	Number of frogs bred? No. frogs successfully released?							

Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Project website	Saving the mountain	n/a	www.mountainchicken	£500

	chicken		zsl.org	
Newspaper and web article	Mountain chickens to return to Montserrat, interview with Sarah-Louise Smith and Ernestine Corbett, by Nerissa Golden, 29 th Oct 2010	Caribbean News Now!	www.caribbeannewsnow.com	£0
Blog	Various	ZSL/Durrell	www.mountainchickenzsl.org	£0
Web Article	Mountain Species of the Day in December 2010	IUCN	http://www.iucnredlist.org/species-of-the-day/archives	£0
Web article	Mountain chickens return to Montserrat, a report by Nerissa Golden, 29 th January 2011	Repeating Islands and Caribbean News Now!	http://repeatingislands.com/2011/01/30/mountain-chickens-return-to-montserrat/:www.caribbeannewsnow.com	£0

3.4 Progress towards the project purpose and outcomes

Our assumption that chytrid-free sites remain free of disease proved false. After consultations with Government of Montserrat, Durrell's Ethics Committee, IUCN's Reintroduction Specialist Group and DEFRA, we adapted our plan. We will now trial releases of captive-bred mountain chickens into chytrid-infected sites in Montserrat's Safety Zone. Whilst this inevitably increases the risk of failure, it does allow us to use sites that are more amenable to intensive monitoring and *in situ* management, and which are believed to have lower levels of introduced predators. Losses due to chytrid seem inevitable, and this is a problem facing amphibian releases and reintroductions around the world. We have established that a small population of mountain chickens continues to survive on Montserrat into 2011 and we believe that at least a proportion of released frogs will also survive. We also believe from our initial monitoring of the release that these frogs will be fit to breed this year. Thus, although a purpose-level assumption no longer holds, we believe we have adapted our plan to allow us to pursue our aim of restoring the *in situ* mountain chicken population.

Support for this project, and the longer term aims of the MCRP, remains strong in Montserrat, Dominica and amongst the European programme partners and we continue to build upon existing capacity through the project.

Proposals for lab-based studies into chytrid resistance in mountain chickens have been developed to run in parallel to the *in situ* initiatives in Montserrat and Dominica. The results of this work will also be incorporated into the long term restoration strategy (though most likely as an adaption of that strategy beyond the lifetime of this project).

3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

The aim of this project is to enable Montserrat to ensure the survival of the mountain chicken frog and its restoration in the long-term. Thus the project aims to establish the necessary skills, knowledge and responses to meet this aim. However this species is also the top native predator on Montserrat and Dominica, a flagship species for both islands and their forests, and an important model for amphibian conservation worldwide. The species has an important role in the culture of both islands and is the national dish in Dominica, although hunting has ceased while the species is so threatened.

In the first three quarters of the project (the project started in July 2010), the project team has established a permanent in-country presence with staff dedicated to conserving and restoring the mountain chicken. In this short time, the first release of frogs back to the island has taken place, and teams have provided detailed and extensive monitoring of these released animals, as well as chytrid levels and the few mountain chickens that survived the chytrid outbreak. Our knowledge of the species has grown immensely and the team has presented a viable model for releasing and monitoring captive bred large bodied amphibians.

Equally the project team is closely integrated with Department of Environment staff and have provided training and experience in using field skills that can be applied to other projects in Montserrat. By trying to recover the frog on Montserrat (the focus of this project) and Dominica, the team is also bringing these islands closer together to develop a shared strategy and vision for biodiversity conservation.

4. Monitoring, evaluation and lessons

There is a hierarchy of structures governing the strategy and providing oversight. At the highest level is the MCRP Group containing the representatives from Durrell, ZSL, Parken and Chester Zoo, and the Governments of Dominica and Montserrat, who oversee implementation of the overall restoration of the species in its entire range. This project reports its results and findings to that group.

Within Durrell the Head of Field Programmes and Conservation Science provide oversight of project progress and financial management from the Headquarters in Jersey and the Project Leader in St. Lucia and Project Coordinator in Montserrat lead daily management and implementation. The Project Leader and Coordinator are in weekly communication concerning implementation and progress.

In Montserrat the project is guided by the Project Steering Committee, which meets quarterly. This PSC is made up primarily of local stakeholders and the Project Coordinator and Research Officer. It is chaired by the In-country Project Leader, Mr. Gerard Gray. Overseas partners representatives are provided with agendas, to which they contribute and minutes are provided online for partners to provide further input.

Following the release of animals and due to the critical nature of the release, the Project Coordinator and Research Officer have been circulating weekly updates on all current activities amongst project partners. This has kept all partners closely involved in implementation and allowed for the rapid adaptation of the monitoring strategy when needed.

The Project Leader, In-country Project Leader and Project Coordinator have also met twice in Montserrat since the inception of the project to review progress and a planning meeting of the European partners has been held in Europe to review and plan the wider MCRP strategy with feedback into this project.

Budget oversight is provided from Jersey where funds are disbursed to the host country partner, Department of Environment, and managed by the Project Coordinator, who reports quarterly on expenditure. Each disbursement from Durrell is only made on the receipt of financial reports on current expenditure.

Activities are implemented following the logframe timetable and are discussed with the PSC ahead of time. The project has picked up delays early in its implementation. For example the coordinator came into the post in October 2010, the vehicle took time to source and there was an extended hiatus in the appointing of the Head of Department for the host country partner.

The key indicator at the moment is the number of frogs released that are surviving, and the data that has been generated as a result. Equally the number of hours of training and hours of fieldwork from host country partner indicates the extent of their integration, which is essential for future sustainability.

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

Not applicable.

6. Other comments on progress not covered elsewhere

7. Sustainability

The mountain chicken has a high public profile in Montserrat and there is considerable Governmental buy-in for the restoration of this species, with approval and ongoing support at the Ministerial level for the actions undertaken to date. Preliminary findings of an awareness questionnaire campaign indicate good public support. DOE, in collaboration with Durrell and other overseas partners (notably RSPB, Royal Botanic Gardens, Kew and Fauna & Flora International), have an established track record for resourcing and sustaining conservation efforts in Montserrat, and in particular for the mountain chicken. Frog monitoring has been carried out annually since 1998 by DOE, very largely with local resources, and this was instrumental in the early detection of the arrival of chytrid on the island, allowing a rapid response (emergency evacuation of uninfected frogs to biosecure facilities) by calling in overseas partners (Durrell). All of the sites at which field activities are currently undertaken are within or cross the boundary of a large (for Montserrat) Protected Area, The Centre Hills. This Protected Area has been the focus of other Darwin Initiative projects (14-027 and EIDPO027) which have put in place effective management systems for the site. The Conservation and Environmental Management Act (CEMA) has been drafted as a Bill. When enacted by GOM it will provide additional support for managing Montserrat's mountain chicken project. Project partner ZSL also has a long history of lab and field based initiatives addressing the problem of chytridiomycosis and the mountain chicken in particular. They have established (13-032) an ex situ facility in Dominica which also provides regional capacity for chytrid surveillance (testing of swabs) that has been used in MCRP. More sensitive health screening capacity is available at ZSL's Institute of Zoology. Durrell and other European partners have established world leading expertise in captive husbandry for this species and have made a long-term commitment to the species since they began working with it in 1997.

Our exit strategy for this project is partly determined by the fact that it is part of a longer-term Recovery Programme, with commitments from European and Montserratian partners to continuing these recovery efforts for this species. The purpose of this project is to establish an evidence base, and the in-country capacity, for this work to continue.

8. Dissemination

As monitoring of the release is ongoing the only results ready for dissemination from the project to date are the protocols detailing the operations of the release and fieldwork activities. These are available on the website at www.mountainchicken.org/resources/reports/ to download and this will continue to be an important tool for communicating outputs from the project. Informal reports on the progress of the project are made available through regular radio interviews and newspaper press releases along with a running blog of project activities which is also available on the website. Television is not a widely used media on Montserrat. Research results when ready to be disseminated will also be available to download from the website and local radio coverage and press releases, along with community presentations will continue as the most effective tool on Montserrat.

9. Project Expenditure.

Table 3 Project expenditure during the reporting period (Defra Financial Year 1 April 2008 to 31 March 2009)

Item	Budget	Expenditure	Variance/ Comments
Matthew Morton			
Andrew Cunningham			
Richard Young			
Gerardo Garcia			
Javier Lopez			
Sarah Louise Smith			
Lloyd Martin			
Calvin Fenton			
Overhead costs			
Travel and subsistence			5% Underspend on UK national travel.
Operating costs			£2,000 for rat monitoring moved to year 2.
Capital items/equipment (specify)			
Others: Consultancy			
Others: PCR analysis			
TOTAL			

10. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

[I agree for LTS and the Darwin Secretariat to publish the content of this section](#)

Annual monitoring by Montserrat's Department of the Environment (DOE) was able to detect the early stages of a mass die-off of mountain chickens on the island soon after chytrid infection appeared. Durrell and DOE initiated an assessment and emergency evacuation of 50 frogs within a few weeks of this discovery, forming the Mountain Chicken Recovery Programme (MCRP) along with the Zoological Society of London, Chester and Parken Zoos. These frogs were taken to biosecure breeding facilities in Europe and within their first year in captivity were successfully bred. This set the stage for the current Darwin Initiative project: to determine the best way for successfully releasing the captive bred offspring back into Montserrat to augment the devastated native population. In early 2011, 64 of these disease-free frogs were released back into Montserrat. The project has demonstrated, for the first time, that it is possible to transport and release mountain chickens back into their native range. Through intensive monitoring we have established that these frogs behave normally in their native habitat, and are able to feed and maintain excellent body condition, despite having been born and raised in captivity. Three of the released frogs have succumbed to chytrid infection after three months in the wild. Given the virulence of chytrid, we have to assume there will be more losses, but we also have grounds for believing some will survive: this project has also been able to confirm local reports that small pockets of mountain chickens do continue to survive in a few of the more remote parts of the island. Our releases will help establish which factors maximize the chances of released frogs surviving and contributing to this now very small native population. The onset of Montserrat's 2011 wet season is anticipated within weeks. With it, we expect the newly released frogs to start breeding: they are already of sufficient size and, with recent rains, regular territorial calls have already been recorded. As the rainy season begins, we anticipate – and will closely monitor – an upturn in these calls as males establish breeding territories.

We have many photos of the species – the mountain chicken frog – both in its native habitat in Montserrat and breeding in captive facilities. We also have photos of people (Montserratians and their European counterparts) working on many aspects of the project, such as radio-tracking,

health swabbing and surveying. We also have photos of the Montserratian public interacting with the captive-bred frogs prior to release. Finally we have photos of the habitat in Montserrat, including shots that show the impact of heavy ash falls from Montserrat's ongoing volcanic crisis.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2010/11

Project summary	Measurable Indicators	Progress and Achievements April 2008 - March 2009	Actions required/planned for next period
<p>Goal: <i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>		<p>The completion of the first trial release of captive bred mountain chickens has provided a model of release and monitoring. Along with significantly increasing our knowledge of the species, the reintroduction of this top native predator into a site known to be free of mountain chicken is directly altering the biodiversity in this area as well as providing support for the release of further frogs in the future.</p>	<p><i>(do not fill not applicable)</i></p>
<p>Purpose Enabling Montserrat to save the Critically Endangered mountain chicken through a programme of research, re-introduction, strategic planning and awareness-raising.</p>	<ul style="list-style-type: none"> •Evidence base documented to support the long term restoration of mountain chickens and the management of chytrid in Montserrat •Long-term species restoration plan agreed. •Trial re-introduction of mountain chickens completed. •Pride in the conservation of the species among Montserratians increased and public support for the species restoration strategy secured. •Regular collaboration between the necessary stakeholders underpins the restoration of the species. 	<p>With the first trial release conducted in January, the formation of the PSC, and the intensive monitoring and data collection achieved so far, the project has advanced much in terms of the main purpose. The focus of the first six months has been on setting up the project, including recruiting the project team, establishing links with stakeholders, conducting the first phase of field research and initiating the awareness raising programme.</p>	<ul style="list-style-type: none"> • Restoration plan drafted during an international workshop • Communication strategy completed and initiated including a Christmas calypso competition • A second release of frogs • Continuation of the data collection including surviving mountain chicken population and background chytrid prevalence across the island • Analysis and publish of the awareness survey results • Transfer of frogs to the Dominican facility
<p>Output 1. 1. The evidence base for the restoration of the mountain chicken and mitigation of the impacts of</p>	<ul style="list-style-type: none"> •Research prioritisation exercise to identify key information gaps completed in Yr 1. •Population estimation methodology 	<p>Data collection on surviving mountain chickens has been established and continues to contribute towards the development of a population estimation methodology. Chytrid monitoring sites have been identified and are sampled on a monthly basis. Databases shared online via 'dropbox' are established</p>	

chytrid is established.	<p>developed for mountain chickens and used to generate estimates for Montserrat and Dominica by mid Year 2.</p> <ul style="list-style-type: none"> ▪Network of chytrid monitoring sites on Montserrat established by the end of Year 1. ▪Database designed and used by Montserrat DOE and project Partners. ▪At least one MSc by a Montserratian student on the environmental dynamics of amphibians as vectors for chytrid on Montserrat completed by end Year 2. 	and training of DOE staff in using these databases has begun. The indicator of a completed MSc by a Montserratian has been adapted and a training plan for the research officer is being developed. The other indicators are still considered relevant for this output.
Activity 1.1 Establishment of project basis and staff in Montserrat		Project staff in Montserrat have been identified and a project laptop and vehicle, along with two GPS units and a project camera have been acquired. This activity is considered complete.
Activity 1.2 Research prioritisation exercise		A preliminary set of priorities have been presented to the wider MCRP partners during a meeting in London and split into <i>in situ</i> and <i>ex situ</i> research initiatives.
Activity 1.3 Develop, test and implement population estimation method		Limited data due to a small number of surviving animals has restricted our ability to estimate survival rates and population estimation methods for surviving mountain chickens in Montserrat. However, surveys to monitor surviving frogs continue and communication with Dominica aims to initiate similar surveys to monitor their surviving populations. Frog-loggers will be deployed as an adjunct method during the next period
Activity 1.4 Network of chytrid monitoring sites identified		Three chytrid monitoring sites have been established and sampling has been continuous since mid-January. These sites include the release site, a ghaunt which is known to contain surviving mountain chickens and a ghaunt which is thought to be free of surviving animals. Monitoring will continue into the second year but samples are still awaiting analysis.
Activity 1.5 Monitoring programme		Four survey sites have been identified and data collection has been continuous since mid-January. Surveys will continue throughout the second year. An order for frog loggers has been placed in an effort to increase the opportunity to detect surviving frogs in new areas.

<p>Output 2. Trial re-introduction of mountain chickens into Montserrat completed.</p>	<ul style="list-style-type: none"> ▪Two survey trips completed to identify primary re-introduction site within Montserrat in Year 1 and 2 ▪Presence/absence of chytrid and amphibians at target sites established. ▪Minimum of 100 adult mountain chickens introduced to primary location, targeted for the end of Year 2. ▪Introduced predator control programme implemented around release sites at the time of introduction and monitored annually. ▪ Early warning monitoring plan for chytrid in the reintroduction site implemented with Montserrat DOE and Volcano Observatory teams. ▪Lessons learnt from trial re-introduction are documented and communicated by mid Y3. ▪A post-release frog monitoring scheme implemented and an adaptive management plan completed for the trial reintroduction by end of Year 3. 	<p>An early warning plan for chytrid is no longer necessary as presence of chytrid has been confirmed in the release site. Intensive monitoring of released and existing surviving frogs will, however, provide early detection of epizootic outbreaks in mountain chickens. Plans to release mountain chickens into a chytrid positive area have been approved by Durrell's ethics committee, Government of Montserrat, DEFRA and the IUCN Reintroduction Specialist Group. Extensive surveys of various potential release sites were conducted and a suitable site was chosen. A total of 64 mountain chickens from the captive breeding populations were released into a chytrid positive site in the Centre Hills in Montserrat. Radio-tracking has been employed as a means of tracking the frogs and increasing data collection. A predator control programme is not considered necessary for the time being but a contingency plan has been developed. Most of the indicators for this output are still relevant.</p>
<p>Activity 2.1 Survey trips to candidate introduction sites</p>		<p>15 ghauts were surveyed across the Centre Hills in response to the preliminary search of Roches confirming the area positive for chytrid. Sites were assessed for suitable habitat, seasonal water availability, access for monitoring and levels of introduced predators. Sites with potential or confirmed surviving mountain chicken populations were discounted and a suitable site was chosen.</p>
<p>Activity 2.2 Development of predator control programmes</p>		<p>Predator control programmes have been postponed as no evidence suggests any currently severe threat from introduced mammal species at the monitoring sites. Monitoring threat levels of potential predators continues and a contingency plan has been developed in preparation but present data do not support implementation.</p>
<p>Activity 2.3 Development and approval of plans for trial introduction</p>		<p>The release plan for the first trial release for 2011 has been approved by</p>

		the Government of Montserrat, IUCN's Reintroduction Specialist Group, DEFRA and Durrell's Ethics Committee. A second release is proposed to take place August 2011, in Year 2.
Activity 2.4 Reintroduction of mountain chickens		A total of 64 captive bred mountain chickens were released in Jan 2011. Of the 64 mountain chickens released, 34 of these animals were tagged with surgically implanted radio-transmitters in order that they could be intensively monitored. A second release is planned in the wet season Aug 2011 Together, these two releases will exceed the target of 100 frogs to be released into Montserrat.
Activity 2.5 Monitoring release success		Data to be collected, both by radio-tracking and using traditional frog searching methods has been determined and has been continuous from mid-Jan to the end of April. Intensity of monitoring will be reduced in May with the failure of the transmitter batteries but site searches will continue along with the deployment of frog loggers during the breeding (calling) season.
Activity 2.6 Adaptive management plan for reintroduction and predator management		Not planned for this period
Output 3. Long term restoration strategy for the mountain chicken established and agreed with regional partners.	<ul style="list-style-type: none"> ▪International/regional re-introduction steering committee established by the end of Year 1. ▪Use of facilities on Dominica to breed frogs for re-introduction to Montserrat assessed by the end of Year 2. ▪Draft Restoration strategy prepared by the Steering Committee and agreed with all stakeholders by end Year 1 and continuously evaluated throughout project. ▪Strategy completed by end Year 3 and published ▪Sufficient capacity in place to manage species restoration long term. 	A project steering committee has been established and meets quarterly for updates and to advise on new proposed elements of the project. A draft of the Restoration strategy is due to be developed at a workshop planned for the next period and is still on target to be completed by the end of Year 3. Facilities in Dominica are soon to be operational and permission from Montserrat to send frogs to Dominica is likely to be awarded by the end of the year. Training in many aspects of the project in Montserrat is being given to several members of the DOE forestry department with particular focus to the research officer in order to increase capacity and project sustainability. Indicators for this output still hold true.
Activity 3.1 Formation and meeting of regional steering committee		A regional PSC has been formed and meets quarterly to receive updates and to advise on new proposed elements of the project. Members of this committee include the Director of the National Trust, Director of Montserrat

		Animal Protection Society, a representative from the Tourist Board and people from various other backgrounds. Two governmental representatives from Dominica are also on the committee and the In-country project Leader is currently drafting a Terms of Reference for the committee to be presented.
Activity 3.2 Review of regional captive breeding opportunities		ZSL have reviewed the status of the captive breeding facility and assessed it ready to house and support mountain chickens. Pending permission from the Minister of Agriculture (GOM), a transfer of the frogs will take place.
Activity 3.3 Training two Montserratian staff on DESMAN course		Completion of the DESMAN course is not planned for this period but additional training with the forestry staff has been taking place during the release in an effort to increase local capacity to continue to manage the species post-project.
Activity 3.4 Development of long term restoration plan		A draft of the restoration plan is due to be completed during a workshop which is planned for the next reporting period.
Output 4. The restoration of the mountain chicken is a source of national pride and benefits from long-term collaboration between national, regional and international partners.	<ul style="list-style-type: none"> •Communication strategy developed for mountain chickens in Montserrat within Year 1. •Minimum of 200 posters produced profiling the species and highlighting core conservation areas by the end of Year 1. •A calypso on the mountain chicken crisis written and broadcast on Montserrat radio by end Year 1. •At least 5 presentations made to local schools during Year 2. •Awareness, attitudes and behaviour surveys shows increased understanding of the conservation value of the mountain chicken by Year 3. 	A communications strategy has been agreed to be developed between the project coordinator, research officer and DOE's education and outreach officer. This will include plans to produce posters, radio interviews, community and school presentations and the preparation of a calypso competition in order to increase the awareness of the project and the species on island. The first round of the awareness, attitudes and behaviours survey has been completed and inputting of the data is on track to be completed by the end of Year 1. Although delayed the indicators for the successful achievement of this output are still viable.
Activity 4.1 Communication strategy completed		The project coordinator, research officer and DOE's education and outreach officer have agreed to draft a communication strategy to be presented to the project partners and the PSC. This should be completed and printed by the end of Year 1.
Activity 4.2 Communications materials produced – posters, calypso		Details of production of these materials will be included in the draft communications strategy.

Activity 4.3 Schools presentations	The Director of Education has given his permission to deliver presentations regarding the project and the species to the schools on Montserrat and this has been discussed with three out of the four headteachers of the island's schools who all indicated their support.
Activity 4.4 Behavioural and attitudes surveys and reporting	Round one of the surveys has been completed with 151 surveys being returned. Inputting of the data and analysis is still pending but is due to be completed by the end of this year.

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of Verification	Important Assumptions
<p>Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.</p>			
<p>Sub-Goal: The probability of long-term survival of the Critically Endangered mountain chicken frog is significantly enhanced on the Caribbean island of Montserrat.</p>	<ul style="list-style-type: none"> ▪Mountain chickens reintroduced to Montserrat establish a self-sustaining population within 5 years of project completion. ▪Management of the mountain chicken restoration plan continues to be led by regional partners through long-term within 3 years of project completion. 	<ul style="list-style-type: none"> ▪CBD national biodiversity strategy reports. ▪Montserrat DOE staff work plans. ▪Scientific literature. ▪Monitoring and evaluation reports 	
<p>Purpose Enabling Montserrat to save the Critically Endangered mountain chicken through a programme of research, re-introduction, strategic planning and awareness-raising.</p>	<ul style="list-style-type: none"> ▪Evidence base documented to support the long term restoration of mountain chickens and the management of chytrid in Montserrat ▪Long-term species restoration plan agreed. ▪Trial re-introduction of mountain chickens completed. ▪Pride in the conservation of the species among Montserratians increased and public support for the species restoration strategy secured. ▪Regular collaboration between the 	<ul style="list-style-type: none"> ▪Project annual reports ▪Scientific literature ▪Government ratified management plans ▪Monitoring data from introduced animals collated annually in database ▪Results presented to international bodies ▪International media coverage ▪Project partner website hit count ▪Public awareness survey results 	<ul style="list-style-type: none"> ▪No catastrophic eruptions of the Soufriere volcano during the lifespan of the project prevent safe access to reintroduction site(s) ▪Reintroduction sites remain chytrid free

	necessary stakeholders underpins the restoration of the species.		
Output 1. 1. The evidence base for the restoration of the mountain chicken and mitigation of the impacts of chytrid is established.	<ul style="list-style-type: none"> ▪ Research prioritisation exercise to identify key information gaps completed in Yr 1. ▪ Population estimation methodology developed for mountain chickens and used to generate estimates for Montserrat and Dominica by mid Year 2. ▪ Network of chytrid monitoring sites on Montserrat established by the end of Year 1. ▪ Database designed and used by Montserrat DOE and project Partners. ▪ At least one MSc by a Montserratian student on the environmental dynamics of amphibians as vectors for chytrid on Montserrat completed by end Year 2. 	<ul style="list-style-type: none"> ▪ Minimum of three scientific papers by the end of Year 3. ▪ Monitoring manuals produced. ▪ Workshop meeting minutes. ▪ Project progress reports. ▪ IUCN specialist group materials and website. ▪ Project partner websites ▪ International meeting proceedings or publications 	<ul style="list-style-type: none"> ▪ MSc student available to implement studies ▪ Sufficient field staff available from Montserrat DOE and Veterinary services.
Output 2. Trial re-introduction of mountain chickens into Montserrat completed.	<ul style="list-style-type: none"> ▪ Two survey trips completed to identify primary re-introduction site within Montserrat in Year 1 and 2 ▪ Presence/absence of chytrid and amphibians at target sites established. ▪ Minimum of 100 adult mountain chickens introduced to primary location, targeted for the end of Year 2. ▪ Introduced predator control programme implemented around release sites at the time of introduction and monitored annually. ▪ Early warning monitoring plan for 	<ul style="list-style-type: none"> ▪ Trip reports. ▪ Data logger records and recordings. ▪ At least two articles peer reviewed scientific publications. ▪ Re-introduction plan published. ▪ Adaptive management plan. ▪ Articles in international print and web media. ▪ IUCN specialist group reports. 	<ul style="list-style-type: none"> ▪ Strategic partnership established with the Volcano Observatory and maintained during lifespan of project enables helicopter access to volcano exclusion zone in Montserrat. ▪ Chytrid-free areas identified in the project remain unaffected by disease ▪ The 50 founder frogs provide sufficient basis for a long term captive breeding programme.

	<p>chytrid in the reintroduction site implemented with Montserrat DOE and Volcano Observatory teams.</p> <ul style="list-style-type: none"> ▪Lessons learnt from trial re-introduction are documented and communicated by mid Y3. ▪A post-release frog monitoring scheme implemented and an adaptive management plan completed for the trial reintroduction by end of Year 3. 		
<p>Output 3. Long term restoration strategy for the mountain chicken established and agreed with regional partners.</p>	<ul style="list-style-type: none"> ▪International/regional re-introduction steering committee established by the end of Year 1. ▪Use of facilities on Dominica to breed frogs for re-introduction to Montserrat assessed by the end of Year 2. ▪Draft Restoration strategy prepared by the Steering Committee and agreed with all stakeholders by end Year 1 and continuously evaluated throughout project. ▪Strategy completed by end Year 3 and published ▪Sufficient capacity in place to manage species restoration in long term. 	<ul style="list-style-type: none"> ▪Restoration strategy document. ▪Annual progress reports. ▪Steering committee meeting reports ▪Evaluation mission report. ▪Training reports and manuals. ▪Montserrat staff member trained at Durrell and ZSL on captive management of mountain chickens. 	<ul style="list-style-type: none"> ▪Dominican authorities continue to support the captive facilities for the lifetime of the project. ▪Mountain chickens can be brought to the captive breeding facility.
<p>Output 4. The restoration of the mountain chicken is a source of national pride and benefits from long-term collaboration between national, regional and international partners.</p>	<ul style="list-style-type: none"> ▪Communication strategy developed for mountain chickens in Montserrat within Year 1. ▪Minimum of 200 posters produced profiling the species and highlighting core conservation areas by the end of Year 1. ▪A calypso on the mountain chicken crisis written and broadcast on Montserrat radio by end Year 1. 	<ul style="list-style-type: none"> ▪Posters and pamphlets printed. ▪School visit reports. ▪Awareness survey results. ▪Communications strategy document printed. ▪Media reports, articles and TV transcripts. 	

	<ul style="list-style-type: none"> ▪At least 5 presentations made to local schools during Year 2. ▪Awareness, attitudes and behaviours surveys shows increased understanding of the conservation value of the mountain chicken by Year 3. 		
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Annex 3

Activities (details in workplan)

- 1.1 Establishment of project basis and staff in Montserrat
- 1.2 Research prioritisation exercise
- 1.3 Develop, test and implement population estimation method
- 1.4 Network of chytrid monitoring sites identified
- 1.5 Monitoring programme
- 2.1 Survey trips to candidate introduction sites
- 2.2 Development of predator control programmes
- 2.3 Development and approval of plans for trial introduction
- 2.4 Reintroduction of mountain chickens
- 2.5 Monitoring release success
- 2.6 Adaptive management plan for reintroduction and predator management
- 3.1 Formation and meeting of regional steering committee
- 3.2 Review of regional captive breeding opportunities
- 3.3 Training two Montserratian staff on DESMAN course
- 3.4 Development of long term restoration plan
- 4.1 Communication strategy completed
- 4.2 Communications materials produced – posters, calypso
- 4.3 Schools presentations
- 4.4 Behavioural and attitudes surveys and reporting

Monitoring activities:

- Indicator 1: Scientific delivery evaluated biannually by Durrell's and ZSL's Head of Conservation Programmes
- Indicator 2: Monitoring of increased skills/capacity of in-country conservationists/host-country project staff
- Indicator 3: Surveys of attitudes towards mountain chickens and the restoration efforts
- Indicator 4: Regional steering committee meeting minutes and reports

Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Release protocol manuals Manuals detailing the procedures necessary to effect a successful release of captive bred mountain chickens. These are working documents that will be amended and updated as we learn more about the best way to do these releases over the lifetime of this project:

- (A) **Strategy for 2011 mountain chicken releases**
- (B) **Biosecurity techniques and protocols**
- (C) **Transport and release of mountain chickens**
- (D) **Monitoring mountain chickens *in situ***, including:
 - Health screening mountain chickens in situ*
 - Radio-tracking released mountain chickens*
 - Surveying surviving mountain chickens*
 - Surveying background chytrid*
- (E) **Health and safety for field workers**
- (F) **Introduced predator control contingency plan**

Candidate release site assessment How the site for the first 2011 release was selected

Training log Record of training activities with project staff in Montserrat and Montserrat's DOE

These documents are available online at: www.mountainchicken.org/resources/reports/

Image gallery available online at: www.mountainchicken.org/resources/image-gallery/

and: www.flickr.com/photos/saving_the_mountain_chicken/with/5658453835/

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Y
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Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Y
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	N
Have you involved your partners in preparation of the report and named the main contributors	Y
Have you completed the Project Expenditure table fully?	Y
Do not include claim forms or other communications with this report.	