

Darwin Initiative

Annual Report

1. Darwin Project Information

Project Ref. Number	13032
Project Title	Addressing a threat to Caribbean amphibians: capacity building in Dominica
Country(ies)	Dominica
UK Contractor	Institute of Zoology, Zoological Society of London
Partner Organisation(s)	(1) Forestry and Wildlife Division & (2) Veterinary Services Division, Ministry of Agriculture and Environment, Commonwealth of Dominica
Darwin Grant Value	204,834
Start/End dates	1 st April 2005 – 31 st March 2007
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 st April 2005 – 31 st March 2006; 1
Project website	www.mountainchicken.org
Author(s), date	Dr Andrew Cunningham (IoZ), Mr Eric Hypolite (FWD) & Dr Reginald Thomas (VSD)

2. Project Background

Chytridiomycosis, a fatal fungal disease of amphibians, is considered one of the main causes of amphibian population declines and extinctions. It has low host specificity, infecting at least 14 families and 93 species on 5 continents and causing severe population declines in many of these, including a small number of global extinctions. During an FFI Darwin Initiative project on bushmeat utilisation on the Lesser Antillean island of Dominica, epidemic mortality of mountain chicken frogs (*Leptodactylus fallax*) was detected. Following the identification of chytridiomycosis as the cause of this mortality and its association with a catastrophic decline of the mountain chicken, it became clear that the conservation status of all amphibian species on Dominica needed to be investigated and the impact of chytridiomycosis on the island's native amphibian fauna needed to be identified and addressed. The urgent need for this project was initially raised by Government and non-Government bodies within Dominica.

3. Project Purpose and Outputs

The purpose of the project is to develop strategies and capacity to minimise the impact and spread of chytridiomycosis within Dominica and other Caribbean islands. In order to do this, capacity is being built within the Caribbean region to mitigate and protect against the actual and potential impacts of the emerging infectious disease, chytridiomycosis, on wild amphibian populations, including rare and endemic species. This involves the development of captive breeding and rapid diagnostic and

surveillance technology on the island of Dominica, which appears to be the first and only Lesser Antillean State to have been affected by chytridiomycosis so far. A Management Plan will be produced collaboratively with Dominica and other Caribbean States to minimise the risk of spread of the disease and to mitigate its impact should it do so. The expertise developed within Dominica will be made accessible to, and distributed amongst, other Caribbean islands at risk.

Planned outputs of the current project are:

- Determination of the current extent and impact of chytridiomycosis on Dominica and to predict the future impacts and routes of spread of this disease.
- Capacity for chytridiomycosis detection and diagnosis on Dominica
- Capacity for captive breeding mountain chickens on Dominica
- A regional Management Plan to minimise the spread and impact of chytridiomycosis in the Caribbean
- Capacity for at least six Caribbean countries to implement to Management Plan.
- A fundraising strategy to ensure the sustainability of amphibian conservation in Dominica.

4. Progress

This reporting period begins with the start of the project. Prior to this, the Forestry and Wildlife Division had conducted some monitoring and surveillance of mountain chicken populations in Dominica, including collecting dead/diseased animals for examination by the staff of the Veterinary Services Division. However, amphibian veterinary expertise was absent from Dominica and there was an absence of diagnostic facilities and tests.

Throughout the first year of the project, the work plan has been carried out more-or-less to plan. In March, a Memorandum of Understanding was signed by the Zoological Society of London, UK (ZSL), the Ministry of Environment and Forests, Dominica, the Veterinary Services Division, Dominica and the Forestry and Wildlife Division, Dominica. Separate MoUs were signed by the ZSL with each of the collaborating organisation (Fauna & Flora International, Chester Zoo & the Durrell Wildlife Conservation Trust).

Educational leaflets on chytridiomycosis and preventing its spread were jointly designed by the ZSL, the VSD and the FWD. Ten thousand leaflets were printed in Dominica and these have been distributed widely across the island, including to hunters and school children. In addition, twenty educational posters were produced and these are prominently displayed in places such as arrivals halls in the country's two airports and at disembarkation points for cruise ships. In addition, we have developed a good working relationship with the national hunters' association and educational programmes in schools, amongst others. These contacts have been used to develop a network of volunteers to detect sick or dead amphibians.

The project web site (www.mountainchicken.org) was launched in July 2005. It is regularly updated with progress reports of the project and information about the threat of chytridiomycosis to amphibian fauna. The educational leaflet described above can be downloaded from the project website.

Dr Reginald Thomas, Acting Chief Veterinary Officer of Dominica, gave a presentation about chytridiomycosis, mountain chicken declines and the Darwin

Initiative project at the 41st Annual Congress of the Caribbean Food Crops Society, Guadeloupe, July 2005.

A two-week workshop on amphibian population monitoring and diagnostic sampling was held from 24th September to 7th October 2005 when training in amphibian identification and population monitoring was given by Dr Frank Clarke (FFI) and training in amphibian disease identification and diagnostic sampling was given by Ms Becki Lawson (ZSL). Detailed workshop notes and a certificate of attendance were provided for each of the FWD staff in receipt of this training. During the workshop, amphibian monitoring transects for lowland and upland species were identified and monitoring and surveillance training was given to ten FWD staff and a training manual was produced. (This training manual is now being translated into Spanish for use by the University of Puerto Rico, amongst others.) A total of 12 highland and 12 lowland transects were identified and monitoring of these was established. Originally, we had planned for monitoring to be monthly, but the logistics better-fit a 2-monthly programme. This has now been adopted in order to maximise FWD staff compliance.

The National Bank of Dominica has the mountain chicken on their company logo. A representative of the bank contacted FWD staff in early 2005 with an interest in providing financial support towards production of educational materials (e.g. leaflets, posters) related to the project. During her visit in October 2005, Becki Lawson met with FWD staff, VSD staff and a representative of the bank to discuss possibilities for corporate sponsorship over the course of the project and into the future. The bank has since been in contact with VSD staff and their sponsorship of the production of further posters is currently being discussed.

The VSD demolished a pre-existing (dilapidated) building and constructed a new laboratory for the project's molecular diagnostic laboratory using funds donated to the Commonwealth of Dominica by the EU STABEX Agricultural Diversification Programme. A shortage of building materials and unfavourable weather conditions delayed the opening and equipping of the new laboratory but the fully-functional building was officially opened by Dr J. C. MacIntyre, Minister of Agriculture and Environment, during a grand ceremony on 20th March 2006. The opening was widely featured on television and radio news programmes and in national newspapers.

The molecular diagnostic laboratory is run by a Dominican veterinarian, Dr Valarie Thomas, who obtained an MSc in molecular biology from Nottingham University, UK in 2005. Dr Thomas visited the Institute of Zoology, London (IoZ) for the month of January to obtain training in molecular techniques (PCR and real-time PCR) for the detection and diagnosis of chytridiomycosis. In addition, Dr Clyde Hutchinson (a molecular biologist at the IoZ) visited the laboratory in Dominica for two weeks to assist Dr Thomas with setting up the new equipment and to ensure quality control for the diagnostic tests.

The delay to the opening of the laboratory delayed the initiation of chytridiomycosis diagnostics on Dominica from November 2005 until March 2006. However, diagnostic material was collected and stored in readiness for the opening of the laboratory.

During the summer of 2005, Mr Dan Horton, a veterinarian at the IoZ, conducted a three-month MSc research project on a risk assessment for the spread of chytridiomycosis in the Caribbean. Funding for this was obtained jointly from the Royal Veterinary College and the Zoological Society of London. Mr Horton also obtained funding from the Zebra Foundation and the Royal College of Veterinary Surgeons, UK to present the findings of his study to the Caribbean chytridiomycosis Management Plan workshop in Dominica (see below).

An international workshop to devise a draft Management Plan for the control of chytridiomycosis in the Caribbean was held in Dominica from 21st – 23rd March 2006. This was facilitated by Dr Andrew Cunningham and Ms Becki Lawson (IoZ), with contributions from all delegates and from Mr Dan Horton (IoZ), Mr Richard Gibson

(London Zoo), Mr Kevin Buley (Chester Zoo), Dr Gerardo Garcia (DWCT), Dr Frank Clarke (FFI), Mr Jay King (University of Missouri) and Dr Patricia Burrowes, University of Puerto Rico. Twenty-three delegates from Dominica participated and, although the relevant authorities from nine additional Lesser Antillean countries were invited to the workshop, representatives from only three attended (Antigua, Grenada & St Lucia). The representative from Montserrat (the only other island with mountain chicken frogs) was unable to attend due to logistical reasons. It transpired that this poor showing was due to a general lack of interest in amphibians and a general ignorance about their importance and the threats they currently face. None of the participants from other Lesser Antillean islands had heard about chytridiomycosis or even about global amphibian declines, even though they were all active forestry and conservation officers.

Despite the small number of international delegates, there was intense interest in the workshop within Dominica and it stimulated a great deal of media coverage and government discussion (including at the level of the cabinet ministers). Dr Patricia Burrowes, University of Puerto Rico, who is a researcher working on amphibian declines and chytridiomycosis on Puerto Rico was also invited to, and participated in, the workshop. The draft Management Plan is currently being drawn up from the copious notes and contributions that the workshop generated. The plan is to use this draft to help inform research activities over the next few years and to use the results from these along with the draft plan to inform a workshop to develop a final Management Plan in 2008. It is, therefore, important to increase awareness about amphibian declines and chytridiomycosis across the Caribbean region between now and 2008.

The presence at the workshop of all persons who had successfully bred mountain chickens in captivity (Gibson, Buley & Garcia – at Jersey Zoo, and King in the States), stimulated the development of an international stud book for the species. This stud book will ensure integrated management of all captive populations, the segregated management of Dominican and Montserratian mountain chickens and the involvement of the Governments of Dominica and Montserrat in decision making about these animals. This was an unexpected bonus from the workshop.

The opportunity was also taken for some refresher training for Dominican forestry staff in the monitoring and disease surveillance of amphibians and in the collection and handling of data from the transects.

In March 2006, following the workshop above, Mr Richard Gibson, Curator of Herpetology at London Zoo, Mr Kevin Buley, curator of Herpetology at Chester Zoo, and Dr Andrew Cunningham ran a one-week workshop on the captive husbandry and breeding of mountain chickens for the project staff in Dominica. This included training in cricket culture and an important output from this workshop was the setting up of a captive colony of Dominican gryllid crickets (exact species unknown), which will be a necessary food source for the frogs once they are brought into captivity. During this period, detailed architect drawings were made for the captive breeding centre and an appropriate site for this centre was chosen.

The Government Information Service is the Dominican national television channel. In order to raise the profile of the project, and educate the public of how they can assist with conservation of the mountain chicken, and Dominica's other amphibians, four national television programmes specifically about the project have been produced to date. In April 2005, Andrew Cunningham, Becki Lawson and Eric Hypolite were interviewed at the time of the launch of the project. In October 2005, Becki Lawson, Reginald Thomas, Eric Hypolite, Jon Bielby (ZSL) and Frank Clarke were interviewed in a two-part programme. In March 2006, in addition to a series of interviews for news programmes, a documentary was made on the mountain chicken and the conservation project in order to educate the public about this remarkable animal and to help build and maintain a constituency for its conservation. A short programme was also broadcast specifically on the opening of the new molecular diagnostics laboratory and the work that will be conducted in this laboratory. Also, an hour-long

radio live phone-in programme was broadcast during the international workshop by an independent station to discuss the project. This programme drew only positive feedback from the public. The Darwin Initiative was mentioned several times and acknowledged for funding the project during each interview and each television programme.

In accordance with the detailed work plan, one scientific paper was submitted to a peer-reviewed journal by March 2006. As this paper has not yet been accepted for publication, however, it has not yet been included as an output.

Achievements against specific outputs are as follows:

Output 1. Current extent and impact of chytridiomycosis on Dominica established and future impacts and routes of spread predicted.

- Training of ten Dominican Forestry staff in disease surveillance and amphibian population monitoring techniques. This is one more member of staff than anticipated.
- The nine mountain chicken monitoring transects from the previous FFI project on bushmeat hunting have been re-established and an additional 15 transects, including 12 high altitudinal transects, have been set up in order to enable population monitoring and pathogen (chytrid fungus) surveillance of mountain chickens and other amphibian species in Dominica.
- A risk assessment has been conducted to identify possible routes of inter-island spread of chytridiomycosis in the Caribbean region and to identify knowledge gaps at which future research will be targeted.

Output 2. Diagnostic capacity for chytridiomycosis detection established on Dominica.

- The building and equipping of a molecular diagnostic laboratory in Roseau, Dominica.
- The training of a Dominican veterinarian (Dr. Valarie Thomas) in molecular diagnostic techniques. Dr. Valarie Thomas is now employed by the Government of Dominica on the Darwin project in a full-time capacity.

Output 3. Capacity for mountain chicken captive breeding programme established on Dominica.

- Forestry and veterinary staff have been trained in basic biology, reproduction and captive husbandry of the mountain chicken by Richard Gibson (London Zoo), Kevin Buley (Chester Zoo), Gerardo Garcia (Jersey Zoo) and Jay King (University of St Louis, Missouri) – these being the only people to have successfully bred this species in captivity.
- An international “studbook” to ensure optimal captive husbandry and management of captive populations of Montserratian and Dominican mountain chickens has been set up between London Zoo, Chester Zoo, Jersey Zoo, Jay King and the Governments of Montserrat and Dominica.
- Native Dominican gryllid crickets (a staple diet of the mountain chicken in the wild) have been identified and captive cultures initiated, with four Dominican staff trained in captive cricket husbandry and culture techniques.
- Architects drawings have been finalised for a mountain chicken captive breeding facility on Dominica and this stage of the project has been approved

by the relevant Government departments. The facility is due to be constructed in June 2006.

Output 4. Management Plan to minimise the spread and impact of the disease in the Caribbean produced and disseminated.

- A four day international workshop, with 26 attendees from the Lesser Antilles, was held in Dominica in March 2006 to develop a draft Management Plan to minimise the spread and impact of the disease in the Caribbean produced and disseminated. This draft plan is currently being written up and will shortly be disseminated amongst all attendees and representatives of additional Caribbean countries.

Output 5. Participants from six countries able to implement Management Plan.

- Although this output will not be realised until the end of the project, the international workshop held in Dominica to devise a draft management plan produced a great deal of enthusiasm from within and beyond Dominica for this output to be successful.

Output 6. Fundraising strategy developed

- Agreement has been reached with the Dominican Ministry of Agriculture and Environment for the captive facility to include an educational visitor attraction for which it is anticipated that tourists will be charged an entrance fee to help fund the continuation of the project. In addition, the Ministry has agreed to fund the continued running and staffing of the molecular diagnostic laboratory beyond the project period. Also, discussions are in place with the National Bank of Dominica (which uses the mountain chicken as its logo) for sponsorship of the project. Finally, early talks are taking place to include the mountain chicken conservation programme within a multinational funding application to the Global Environment Facility for amphibian conservation.

None of the outputs have been modified over the past year.

Minor difficulties included a lack of concrete on the island during the summer of 2005, which delayed the construction of the molecular diagnostic laboratory and the unexpected amount of bureaucracy surrounding the design and construction of the captive breeding facility, which has been delayed until June 2006. Although frustrating, none of these difficulties have been problematic to the goals of the project. In fact, the construction of a new and dedicated molecular diagnostic laboratory (comprising an office, three purpose-built laboratory rooms and a bathroom with air conditioning throughout) has been a bonus to the project as we were originally promised only a room in an existing building. This laboratory was constructed using funds (approx. £35,000) donated to the Commonwealth of Dominica by the EU STABEX Agricultural Diversification Programme.

We had originally planned to conduct amphibian population monitoring and disease surveillance along transects at monthly intervals. This, however, turned out to be impractical for the forestry staff, so bimonthly surveys are being carried out instead. This level of surveillance will not be detrimental to the quality of the results and has encouraged greater compliance from the forestry staff.

There was a surprising lack of interest from Lesser Antillean States to attend the International Workshop: although representatives from nine countries were invited, only three attended, with logistical problems keeping the representative from Montserrat away. It turned out, from discussions with the participants of the three Lesser Antillean islands (Grenada, Antigua and St Lucia) that were represented, that this was due to (1) a general lack of interest in amphibians in general throughout the region (apart from Dominica and Montserrat) and (2) complete ignorance of

amphibian declines as a global issue and of chytridiomycosis as a specific threat to amphibian conservation. In addition to dissemination of the need for education and action on this topic via word-of-mouth, the Dominican Minister of Agriculture has agreed to raise the issue of the threat of chytridiomycosis at regional and other inter-governmental meetings and to champion the draft management plan in the region. Raising such awareness amongst Caribbean governments is an unexpected requirement of this project, but it has not affected the design of the project.

The timetable for the next year of the project is as follows:

July 2006	Building of captive breeding facility completed
July 2006	Further training of forestry staff in amphibian survey techniques
September 2006	Further training of veterinary staff in diagnostic techniques.
September 2006	Mountain chicken frogs in captivity in London & Chester Zoos as part of the international captive breeding programme
December 2006	Supervisory visits by Andrew Cunningham & Becki Lawson.
March 2007	Dominican captive facility stocked with at least 50 mountain chickens
March 2007	Two papers published.

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

Not applicable.

6. Partnerships

The collaboration between the UK and host country partners over the last year has been extremely good and there are good working and personal relationships between the UK and the Dominican staff.

Two notable and unexpected advantages to the project have occurred:

1. Dr. John Collin MacIntyre, the project partner in the Veterinary Services Division, retired as Chief Veterinary Officer and was appointed as Minister for Agriculture, Fisheries and the Environment in May 2005. Dr. Reginald Thomas, who – like Dr. MacIntyre - is an enthusiast for wildlife conservation, has taken over as Chief Veterinary Officer, and he is now the project partner in the VSD. These developments are all to the benefit of the project.
2. Dr. Valarie Thomas, a Dominican veterinarian, was hired by the project (as an employee of the Dominican Ministry of Agriculture and Environment). Dr. Thomas graduated from Nottingham University in 2005 with an MSc in molecular biology and had recently returned to Dominica where she was unemployed. Being able to appoint a veterinarian with a molecular biology degree to run the molecular biology laboratory was an unforeseen advantage to the project. Hiring Dr Thomas full-time on the project meant that we dispensed with our original plan of paying for existing veterinary staff to work part-time on the project.

During the year we became aware of a project on chytridiomycosis and amphibian declines run by Dr. Patricia Burrowes at the University of Puerto Rico. Puerto Rico is the only other Caribbean island where this disease has been found. We have now established links with Dr. Burrowes' research group and we have initiated a mutually-beneficial collaboration with the University of Puerto Rico. For example, Dr. Burrowes attended the International Workshop we held in Dominica in March 2006, where she gave presentations and participated in the workshop discussions. During the workshop, practical training sessions on amphibian monitoring and disease surveillance were held for the international participants and Dr. Burrowes participated in these in a training capacity.

7. Impact and Sustainability

The project has maintained a very high profile throughout Dominica since it was initiated in April 2005. This high profile is at both the political and public levels, where there is already a good appreciation for nature conservation and for saving the mountain chicken from extinction on Dominica, where this species is an important part of the local culture. The profile of the project has been maintained by a series of key events (e.g. project initiation, official opening of the new laboratory, international workshop), each of which has stimulated media coverage in English and in Creole. In addition, meetings and discussions with the network of licensed hunters (and their regular contact with forestry officers working on the project) and a series of school visits by VSD staff to promote awareness of chytridiomycosis and amphibian declines, have kept the profile of the project high throughout the past year. The Darwin Initiative is mentioned whenever possible and is now widely known in Dominica as the funding agency for this project.

8. Outputs, Outcomes and Dissemination

The outputs achieved during the first year of the project are pretty much as planned. One additional output was the development of a risk assessment for chytrid spread in the Caribbean, which was conducted by an MSc student and which was used to inform the draft Management Plan workshop.

Information about the project has been widely disseminated in Dominica via a large number of national media outputs (see above) and through the distribution of ten thousand educational leaflets. These leaflets were primarily distributed to school children during educational visits by veterinary or forestry. It is hoped that the children will have taken the leaflets home and discussed them with their families, thus we expect to have reached at least 20% of the country's population (of approx. 69,000) in this way. In addition, twenty educational posters were produced and these are prominently displayed in places such as arrivals halls in the country's two airports and at disembarkation points for cruise ships. The project web site (www.mountainchicken.org) was launched in July 2005 and has been promoted during media interviews. Dissemination of the project will continue via school visits after the project ends, and also, it is planned, via educational visits to the mountain chicken captive breeding centre. Currently, it is envisaged that a charge to tourists to visit this centre will pay for its upkeep and for continued awareness raising and educational activities.

Table 1. Project Outputs (According to Standard Output Measures)

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	TOTAL
6a	Training in amphibian population	40				

	monitoring and disease surveillance; in captive husbandry and breeding of mountain chickens, in culture of captive crickets; in disease risk assessment and mitigation; in chytridiomycosis detection and diagnostics	
6b	as above	16
7	Production of training manual in amphibian population monitoring and disease surveillance	1
8	weeks spent by UK project staff on project work in host country(s)	21
11b	Paper submitted to peer-reviewed journal	1
14a	Workshop on amphibian population monitoring and disease surveillance; International workshop on managing chytridiomycosis in the Caribbean	2
14b	IoZ annual research conference; IoZ research seminar; conference of the British Veterinary Zoological Society; 41 st annual congress of the Caribbean food crops society	4
15a	Number of	5

	national press articles published in host country	
15c	Number of national press releases or publicity articles in UK	1
18a	Number of national TV programmes/features in host country(s)	6
19a	Number of national radio interviews/features in host country(s)	5
21	Molecular diagnostics laboratory	1
22	Amphibian population monitoring and disease surveillance transects	24
23	Construction of molecular diagnostics laboratory; funding for Mr Dan Horton's research, travel and subsistence.	36,800

Table 2: Publications

Type *	Detail	Publishers	Available from	Cost £
(e.g. journals, manual, CDs)	(title, author, year)	(name, city)	(e.g. contact address, website)	
Training manual	Training workshop on amphibian population survey techniques and disease screening for chytrid	Zoological Society of London	Dr Andrew Cunningham, Institute of Zoology, Regent's Park, London NW1 4RY	N/A

10. Monitoring, Evaluation and Lessons

Evaluation of the abilities of forestry staff to undertake amphibian population monitoring and sampling for the surveillance of chytrid infection have been carried out in the field by UK staff (Frank Clarke, FFI & Becki Lawson, IoZ) on two occasions: once immediately after the workshop on amphibian monitoring and again five months later during visits to attend the international workshop. A review meeting was held with the relevant forestry staff during the international workshop in order to ensure correct compliance with the standardised protocols. In addition, regular reports are obtained from the FWD and VSD and data collection from transects has been carefully monitored throughout the year. For the molecular diagnostics work conducted by veterinary staff, there are in-built quality control features, such as positive standards and negative controls. Dr Clyde Hutchinson (IoZ) is in regular telephone and email contact with Dr Valarie Thomas to help trouble-shoot (as necessary) and to ensure satisfactory outcomes are achieved. In addition, cross-checking of the first batch of results has been carried out at the IoZ via the analyses of duplicate samples.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2005/2006

Project summary	Measurable Indicators	Progress and Achievements April 2005-Mar 2006	Actions required/planned for next period
<p>Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources 			
<p>Purpose <i>(insert original project purpose statement)</i></p> <p>To develop strategies and capacity to minimise the impact and spread of chytridiomycosis within Dominica and other Caribbean islands.</p>	<p><i>(insert original purpose level indicators)</i></p> <p>Government of Dominica endorses and participates within in-country capacity building. Representatives of at least 6 Caribbean States endorse and agree to implement the Management Plan to minimise the spread and impact of chytridiomycosis.</p>	<p><i>(report impacts and achievements resulting from the project against purpose indicators – if any)</i></p>	<p><i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i></p>
<p>Outputs</p>			
<p><i>(insert original outputs – one per line)</i></p>	<p><i>(insert original output level indicators)</i></p>	<p><i>(report completed activities and outcomes that contribute toward outputs and indicators)</i></p>	<p><i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i></p>
<p>Current extent and impact of chytridiomycosis on Dominica established and future impacts and routes of spread predicted.</p>	<p>International and scientific community endorses the research results.</p>	<p>Initial results of extent and impact on mountain chicken submitted for publication.</p>	<p>Continue amphibian population monitoring and conducting disease surveillance, as planned.</p>

Diagnostic capacity for chytridiomycosis detection established on Dominica.	Equipped diagnostic laboratory and trained staff on Dominica. Diagnostic results produced and these verified by international scientific community.	Equipped diagnostic laboratory and trained staff on Dominica. Initial diagnostic results produced.	Continue collecting and analysing samples, as planned.
Capacity for mountain chicken captive breeding programme established on Dominica.	Presence of captive breeding facility and trained staff on Dominica.	Staff partially trained.	Finish staff training and build captive breeding facility.
Management Plan to minimise the spread and impact of the disease in the Caribbean produced and disseminated.	Plan developed and produced collaboratively by participating Caribbean states (10 participants); media events; educational material; popular and scientific publications.	Draft plan in development.	Draft plan to be finalised and circulated to relevant authorities in the Lesser Antilles – the need for this plan is to be promoted by the Dominican authorities to increase awareness and the chances of compliance.
Participants from six countries able to implement Management Plan.	10 staff from 6-8 countries trained in mitigation of disease spread and impact; email network created.		As above
Fundraising strategy developed	Strategy agreed	Discussions underway to develop a fundraising strategy.	Continue discussions.

Note: Please do NOT expand rows to include activities since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.