



Department  
for Environment  
Food & Rural Affairs



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Office



Department  
for International  
Development



## Darwin Plus: Overseas Territories Environment and Climate Fund

### Final Report

#### Darwin Project Information

Project reference	DPLUS049
Project title	Maximising long-term survival prospects of Montserrat's endemic species and ecosystem-services
Territory(ies)	Montserrat
Contract holder Institution	UK Overseas Territories Conservation Forum
Partner institutions	Treweek Environmental Consultants, Montana State University, Montserrat National Trust, Montserrat Department of Environment
Grant value	£83,710 in Y1 + £81,690 in Y2 = total £165,400
Start/end date of project	1 April 2016 to 31 March 2018
Project leader name	Dr Mike Pienkowski
Project website/Twitter/blog etc.	<a href="http://www.ukotcf.org.uk">www.ukotcf.org.uk</a> ; <a href="https://www.facebook.com/ukotcf">www.facebook.com/ukotcf</a> twitter: @ukotcf
Report author(s) and date	Dr Mike Pienkowski, Mrs Catherine Wensink, Dr Nicola Weber (UKOTCF), Dr Jo Treweek, Ms Jennifer Hruza (Treweek Environmental Consultants), Mr Nicolas Tirard (Montserrat National Trust), Dr Mike Ivie, Dr Justin Runyon (Montana State University), with contributions from the Government of Montserrat, 26 June 2018

## 1 Project Overview

Montserrat has a diverse flora and fauna including at least 132 endemic species or subspecies. It supports 4 species of sea turtle, and 102 species of birds, including 34 breeding, one endemic species, one endemic subspecies and 10 other range-restricted species. There are around 795 plant species native to the island, of which 3 are endemic (although one considered extinct in the wild), and 1,240 invertebrate species, of which approximately 120 are endemic, with 70 endemic beetles and a noteworthy species of bottle-bee *Melipona*. There are 3 species of amphibians and 11 species of reptiles reported; these include 6 endemics at the species or sub-species level. This biodiversity persists despite two-thirds of the island being an Exclusion-Zone due to volcanic activity, which destroyed large areas, including most of the housing stock and the capital, over 20 years ago. Earlier part-Darwin-funded work focussed on collecting baseline biological data and developing plans to protect the Centre Hills. Recognising additional areas of biological importance, this project aimed to take a strategic view of the island, needed to identify and minimise pressures. In common with most regions and particularly islands, Montserrat's biodiversity is being threatened by habitat loss and fragmentation, invasive alien species, development and impact of climate change (Millennium Ecosystem Assessment, 2005), but exacerbated by the volcanic situation.

Relative to neighbouring islands, such as St Kitts, Nevis and Dominica, Montserrat's natural environment remains exceptionally biodiverse. Roches, a remaining forest area of about 2 km<sup>2</sup> in the south of the Exclusion Zone, presents an opportunity to restore or manage a tropical Caribbean forest. This vegetated area has mostly become isolated from other forested areas, following volcanic activity. It is being impacted by invasive plant species, including neem and *Casuarina*, as well as by feral animals

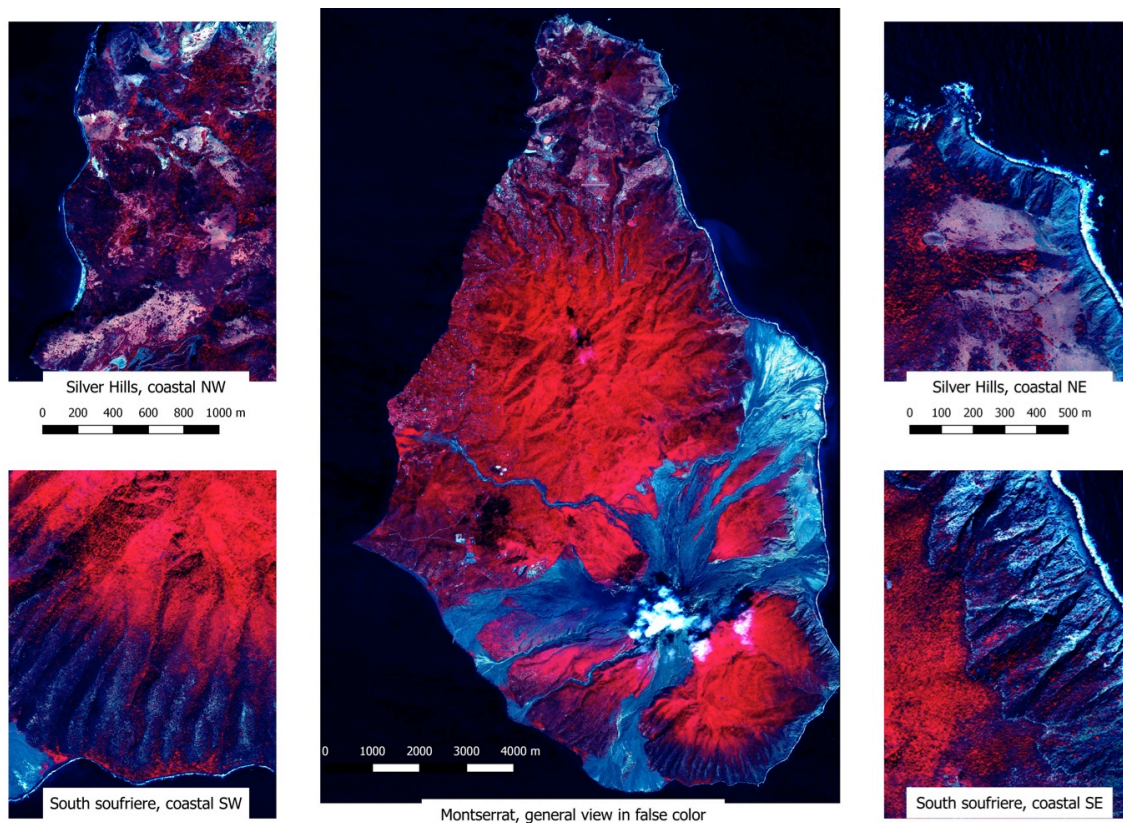
(originating from former livestock) which, in the far north, has led to soil erosion and can also aid alien plant invasions (see Fig. 2). However, it is evident (Forestry Department, pers. comm.) that there are areas of great biological importance such as healthy stands of *lignum vitae* and endemics still present, including the oriole, an endemic bird species.



**Figure 1: Map of Montserrat; GoogleEarth 2018**

Images in Figure 2, show impact of goats on the coastal dry forest. In places of the Silver Hills (top right and top left), presence of large patches light pink, that are absent from the South Soufriere Hills (low right and low left). On the ground, those patches correspond to savannah, with limited biodiversity. It will be important to end over-grazing in the south, to avoid the losses of natural ecosystems that happened in the north. (Close inspection during this project has demonstrated that this is starting to occur in the south – see below.) Healthy tropical dry forest (a rare and threatened ecosystem globally) appears as dark blue, and one can see that the largest patches of this colour lie around the South Soufriere Hill area. One can note that: (1) Dry forest in the north is being threatened by goats; (2) Dry forest on the west foothills of the Centre Hill is largely gone as a consequence of built development; (3) Dry forest on the east foothills of the Centre Hills is threatened by further built development. Protecting the South Soufriere Hill, mainly from feral animals, as human cannot access, might be the best way to preserve this ecosystem in Montserrat (as well as particular areas further north, though the sort of schemes initiated by this project – see below).

With this in mind, maximising the survival prospects of Montserrat's endemic species and ecosystem-services (e.g. water-supply and natural areas that provide a basis for ecotourism, environmentally sustainable economic recovery etc.) on which the local community depends, is dependent on maximising the area of natural ecosystems. Both the Government of Montserrat and the Montserrat National Trust have indicated that three elements are necessary to achieve this: (A) particularly in the open zone, introducing effective planning for the necessary development (this includes Environmental Assessment, and building local capacity on this and on conservation, as well as increasing local availability of biological data); (B) identifying threats to the remaining forests in the Exclusion-Zone (e.g. invasive/non-native species) and identifying ways of mitigating these, to contribute towards ecosystem (and economic) recovery; and (C) facilitating sustainable tourism, valuing the environment and involving more local people in using it sustainably for livelihoods, without compromising its role in biodiversity conservation. This project focuses on element (A) and develops plans for (B). UKOTCF and local partners are addressing (C), including via other ways outside Darwin-Plus.



**Figure 2: Satellite image of Montserrat (March 2015) courtesy of DigitalGlobe Foundation grant; analysis in QGIS by Nicolas Tirard, MNT (see main text for explanation)**

The project was developed, at the request of the Government and other stakeholders in Montserrat, as well as the Foreign and Commonwealth Office, to support objectives in Montserrat's Sustainable Development Plan (SDP) 2008-2020, therefore addressing challenges relevant to the whole community, who were consulted on the SDP. Its design involved extensive community consultation with the Minister, the Department of Environment and Montserrat National Trust, Montserrat's civil society environmental body, in the year running up to the project start date. While ambitious, the design took in to account what would be feasible within the timeframe.

The project supported the work of several Government Departments, including the Physical Planning Department to meet objectives under the Physical Development Plan, and the Department of Environment to meet its objectives as set out in the Conservation and Environmental Management Act 2014. To address the challenge of how to ensure the island continues to develop sustainably and taking in to accounts its natural features, a series of interviews and discussions were organised and conducted by Treweek Environmental Consultants, working *pro bono*, in order to identify the barriers to progress in ensuring, as part of the planning process, that biodiversity and ecosystem services suffer no net loss as a result of physical development.

There is a challenge in that the area in the south has been largely overlooked in terms of how it can contribute towards a greater understanding of Montserrat's biodiversity largely as a result of its isolation and proximity to the volcano. However, there may be opportunities to revisit given that some access is now practicable during daytime and under permit (and used frequently for visits to Plymouth). The project aimed to overcome this by bringing together views from, and establish agreement between stake-holders (including land-owners, conservationists, researchers, those involved in access, decision-makers) on what to do with this area – some intended to be aspirational, but some clearly achievable if the resources were available. This would be a first step in securing this ark of wildlife. The barriers to making this happen have been made clear throughout this project and are a stepping stone towards increasing the size of protected forest areas on Montserrat and contributing towards science on a global stage. An in-depth account of the south is found on page 7 of the Annex to the 1st Workshop report.

Community engagement in conservation actions, not just during the life-time of the project but continuing beyond it, was a key component in order to address fluctuations in capacity, a dominant problem for many small island communities, in order to carry-out tasks. By creating a mechanism for the Montserrat

National Trust to get more members of the community involved in activities, this challenge can start to be addressed. The initiative developed to another level some elements, which had been trialled elsewhere in the UKOTs (e.g. Environment group in Turks and Caicos), but integrated these and added many new components. The project aimed also to make a start in enabling access by planners, conservationists, students, teachers and others on Montserrat and elsewhere to the large quantities of relevant data on the island held overseas. This start has been made by digitizing beetle collections from the main holding institutions in North America and Europe, and designing an access hub tailored to Montserrat, these aspects of the project being coordinated by Montana State University.

## 2 Project Stakeholders/Partners

### *UK Overseas Territories Conservation Forum*

UKOTCF is a UK charity, which has had, for over 30 years, a close and continuing relationship with UKOTs, including Montserrat. It is the only organisation solely devoted to conservation, sustainability and related education across all UK Overseas Territories (UKOTs) and Crown Dependencies (CDs). It does not have a separate agenda from that determined in consultation with the territories, with which it always works in partnership. This and other projects are developed out of this relationship. The project partners were closely involved in the planning of the project. Physical meetings between UKOTCF and Montserrat project partners and other local stakeholders have been held half-yearly, supplemented by over 20 Skype meetings between various combinations of partners and the lead partner. UKOTCF has coordinated and managed the project, as well as leading on some aspects, including facilitating the stakeholder agreement on the future of the south and liaising with Ministers, amongst others. So as to minimise the work of others, noting how capacity limitations are a common feature in many of the UKOTs, UKOTCF links all pieces of work together. With the Montserrat National Trust, it has drawn in many additional stakeholders during the project, this adding to the achievements and chances of overcoming challenges in the long-term.

### *Montserrat National Trust*

MNT is the lead local partner and has been party to all project management discussions and decisions. It has prioritised actions and discussed with UKOTCF throughout how to meet the projects objectives. In addition, it led on the *Adopt a Home for Wildlife* component, and local logistics for all components, participating in all of these. Its capacity was raised during this project with the appointment of a well-qualified Project Officer. Furthermore, because of this appointment it has been possible for the partners to develop a successful proposal to the EU-funded BEST Scheme. The project, which was awarded €90k, enabled increased MNT's capacity and facilities for plant-rearing. The supplementary project built infrastructure at the botanic garden so that, following earlier work, the endemics *Rondeletia buxifolia* and *Epidendrum montserratense* and other endangered native species can be propagated for reintroduction/restocking by many in the local community, dramatically improving their survival prospects. The additional sub-projects which the MNT has been able to undertake, as a result of this project, has led to training in orchid propagation and a wet-room established on-island to encourage members of the community to supplement MNT's efforts. This complements the Darwin project activities well, as it provides the local community with the means to reintroduce native plants into their local areas through the *Adopt a Home for Wildlife* initiative and will maximise the plants' ranges on island, as well as manage invasive plants in these areas, as currently there is not the technology to remove them from the island. The BEST funding also allowed the PO's part-time position to become full-time for the duration of the project, raising capacity further.

Dr Katie Metcalf, of Environment Systems, providing an introductory session to the PO and personnel from the Department of Environment, on the use of open-source software, Quantum GIS (known popularly as QGIS), in order to understand how the use of satellite mapping can inform their work. The use of QGIS is becoming common and overcomes challenges of lack of funds for commercial software. This has led to MNT's involvement in a supplementary project, funded through JNCC, for Environment Systems to develop a vegetation map of the island using remote sensing, building on initial work by this Darwin project. The Darwin PO, who is an experienced local botanist, was able to demonstrate to JNCC/Environment Systems personnel the local vegetation and relate it to the imagery, as well as undertake some further ground-truthing, which the PO (and a local youth fieldworker) were instrumental in progressing. This highlights the importance of how projects can expand valuably beyond even the original ambitious scope, but without the initial resourcing, the other valuable progress would not be possible. The PO took part in the series of radio broadcasts and organised stakeholder workshops, as well as meeting with local groups to discuss management of *Adopt a Home for Wildlife* which resulted in further adopters coming forward, including schools and private businesses.

### *Government of Montserrat*

Some mutual sharing of data and information took place between the GIS Department, Montserrat Volcano Observatory and UKOTCF, which enhances information locally as well as giving extra resources

to the project. UKOTCF was able to access the island's Physical Planning Unit and Lands & Survey information at [www.landinfo.gov.ms](http://www.landinfo.gov.ms) as well as some not on open release. As mentioned, UKOTCF has been able to share some information on the use of the free-open source QGIS, which is now being used by many for GIS in preference to expensive commercial programs.

- *Ministry of Agriculture, Trade, Lands, Housing & Environment*

A change in Ministers championing the project did not result in less support for it, as extensive hand-over briefings were given both by the former minister and by the project team. In fact, the new and former Environment Ministers were both present at the concluding stakeholder meeting on the future of the south, showing significant support for the work and the former Minister (still a Member of Legislative Assembly) facilitated a discussion on some key aspects. In addition, one extended meeting, and several brief discussions, were held by the project leader with the Premier together with the Environment Minister, with enthusiasm in using the results being expressed by both Ministers.

- *Department of Environment (including Forestry)*

DoE were fully involved in discussions on the scope of the project from before application stage. Unfortunately, from early in the project period, DoE suffered ill-health problems at a senior level and also prolonged staff-vacancies at other levels. This limited their ability to be engaged fully in implementation aspects and meant that others, especially MNT, undertook some roles. Nevertheless, DoE maintained participation in team meetings and decision-making throughout the project, and those aspects needing governmental approval were still handled by them. In some situations, senior aspects were delegated upwards to Ministerial level, and the team is grateful for the Ministers' involvement, support and encouragement, as well as their enthusiasm to make use of the project results.

Despite these challenges, continuing inclusion allowed government personnel by interacting with the *pro bono* experts (see below), to benefit from training, as well as from the practical, low-cost recommendations for improved use of limited resources to address the interaction of environment and development planning. At the request of the Ministers, the recommendations from the *pro bono* consultants have been reworked by the project during Year 2 for incorporation into Cabinet papers by senior officials, for decisions to ensure that the Government of Montserrat has the tools and support to enable them to meet requirements as set out in CEMA (the Conservation and Environmental Management Act). This important change (approved after the First Year Report) was necessary as it was seen by all as the most effective way to achieve the project aims.

- *Physical Planning Unit*

The core management team (UKOTCF and MNT) liaised with the Chief Planning Officer and key personnel throughout the project and adjusted detailed working to best match the needs of PPU and DoE in fulfilling the Physical Planning Acts and CEMA. During the second year, some changes were made to personnel in PPU. This shows the importance of meeting with a range of stakeholders throughout projects and, in this case, had been working closely particularly in respect of remote-sensing, with a talented and qualified local officer in the Physical Planning Unit. Mutual sharing of information helped develop even further a wide range of further collaboration when this person was moved to a leading position in PPU. Montserrat benefited from the access to satellite imagery, secured *gratis* through a combination of UKOTCF & Montana State University efforts, which would otherwise have been expensive, if purchased commercially. The collaborative work on remote-sensing interpretation by the project and PPU, later extended by a JNCC-funded mapping project coinciding with project Year 2, and combined with earlier Darwin-supported mapping of part of the island by RBG Kew, resulted in greater understanding of the habitats of Montserrat, needed to inform planning & conservation decisions.

- *Disaster Management Coordination Agency, Royal Montserrat Police Service, and Montserrat Volcano Observatory*

All these agencies (and many other stakeholders) participated strongly in the series of project workshops on the future of the south. These 3 agencies are key to complex issues of access arrangements in the restricted access zones in the south of Montserrat. In addition, some suggestions as to how this area's biological significance could be linked with its geophysical importance in order to support increased tourism opportunities, have emerged from the discussions, e.g. GeoPark, Ramsar Convention Site etc.

- *Tourism Unit*

UKOTCF and MNT have had links to the Tourism Unit for many years. Although, in recent years, the Tourism unit has been subject to several reorganisations, the personnel have been strongly involved in workshop discussions and gave good input into the vision statement for future of the south. They have been "amazed" by the opportunities for south and are very enthusiastic future partners.

## *Montana State University*

MSU led on the work on collating data from several international institutions and further collecting information on Montserrat beetles and other insects, digitally capturing these and establishing access for Montserrat and elsewhere in what became known as the *Montserrat Virtual Museum of Natural History*. Three student assistants with a background in working with museum collections and computing were tasked with inputting data and design of the portal, overseen by Dr Mike Ivie, the West Indian Beetle Fauna Project curator. One such opportunity was given to a Cuban National studying in the US. When visiting Montserrat during summer 2017, Professor Ivie attended stakeholder meetings and was able to give useful insight to those decision makers on island (particularly Government of Montserrat) on significance of Montserrat's biodiversity. The team gave local students from Montserrat opportunities to become involved in fieldwork. Additionally, through MSU, an Obama Scholar researcher worked *pro bono*, initially remotely on flies collected incidentally during work in the Centre Hills work in 2005, and then on Montserrat (at his own cost); this enabled further work beyond the scope of the project including collections of additional invertebrate groups (see two scientific papers). The ability for Darwin projects to involve additional elements beyond their scope, which help them to achieve their aims, is an important point. For example, here the fly species, identified as new to science, provides an important ecosystem service for the island, in so far as it eats mosquito larvae. MSU is a fully-vested collaborator in the xBio:D (trans-Biology: Diversity) database, at Ohio State University, which holds all records. These records date mainly from the current century, but include also some earlier records, the earliest being 1910. So far, this project has together records from 8 institutions, most in the US, but including also some in UK and Canada. MSU liaises with them. The database, an Oracle-application query-able in OJ-Break-API, is a data-provider to both iDigBio and Global Biodiversity Information Facility (GBIF), so protocols are in place and functional, compliant with international and Darwin-Core standards. It is hosted by a consortium of US universities and funded in perpetuity by an endowment.

## *Treweek Environmental Consultants*

The consultants here normally work on environmental and social audit for major projects funded by the World Bank and International Finance Corporation, but strive also to undertake *pro bono* work for small countries and territories. They led on Output 1 of the project (System in official development to ensure that developments in the occupied zone take full account of maintaining the natural environment), through the better integration of environmental aspects into physical planning, in dialogue with all departments and stakeholders, so important in understanding some of the barriers to progress. The programme was modified significantly to meet the most priority needs of the users. UKOTCF followed up TEC work to link with the rest of the programme, so as to make best use of TEC's limited *pro bono* time. This ensured that TEC's reports got to decision-makers for incorporation in cabinet papers.

*Further stakeholder engagement throughout the project included partnerships formed as outlined below:*

## *Osborne Company*

This company is the main land-owner of the important forest area in the south. These owners are fully supportive of initiatives to protect it as important ark for biodiversity, and potentially explore the possibilities for environmentally sustainable tourism. At the invitation of the company directors, UKOTCF personnel attended a gathering attached to the company Annual General Meeting to present the project and outline vision as identified by stakeholders during the project. This was welcomed, with approval.

## *Montserrat Community*

The project workshop and other consultation reports, with attendance lists (Annexes 7-9), illustrate the strong involvement of the relevant organisations and individuals. The enthusiastic response and initial sign-ups to the *Adopt a Home for Wildlife* part of the project (see *Saving Our Special Nature of Montserrat* newsletters 3-6 – Annexes 12-15) illustrate strong interest and active involvement from the general and business community. In all cases, the *Adopters* are fully involved in decision-making for their site, generally taking the lead on this, under guidance by the PO. To foster greater support from within the community, the initial sign-ups, Dwayne Hixon and Julian Romero, contributed interviews, which were published in the 3rd project newsletter. Further sign-ups included Tim Orton (report in newsletters 4-5, Annexes 13-14); Montserrat Island Dive Centre (report in newsletter 4, Annex 13), involving many people in beach and underwater clean-ups; and Cork Hill Committee (report in newsletter 5, Annex 14), involving many active land-holders and others. Schools are initiating involvement in this component too, and 330 students attended a training day at MNT, which will extend beyond the project. Details of Adopted sites and teams are given in the newsletters (Annexes 3-6).

Ways in which the project team has engaged with the community are outlined elsewhere in this report.

### *Additional International Partners*

Some years ago, to meet a request for help in marine management that was not at that time being resourced from UK, UKOTCF facilitated the US Waitt Institute to partner with the Government of Montserrat to meet this need by donating major help in kind. During the current project, UKOTCF became aware that, due to misunderstandings, a UK Government agency were proposing to duplicate the work already done over the previous couple of years by Waitt, without consulting Waitt, and that Waitt's owner had therefore decided to withdraw (although it was apparent that the new participants would not have the resources to replace Waitt's). At Montserrat's request, UKOTCF intervened at a senior level with the UK agency, with the result that a more collaborative arrangement was generated. UKOTCF continued to liaise with both, and is collaborating with Waitt, including during their visits to UK, to maximise the benefits to Montserrat, including exploring sustainable finance for environmental conservation.

In addition, UKOTCF invited JNCC and their contractors to its workshop on Montserrat when the teams happened to overlap and this was reciprocated, with the Darwin project team spending prolonged periods in the JNCC seminars in order to supply information based on their longer and deeper involvement with Montserrat. The Darwin team extended this to provide some guidance in the fieldwork.

## **3 Project Achievements**

### **3.1 Outputs**

#### **Output 1. System in official development to ensure that developments in the occupied zone take full account of maintaining the natural environment**

Development pressures in the open areas are increasing, because a new capital needs to be built as well as housing and other infrastructure. This potentially impacts wide areas of the open-zone including the Centre Hills. In 2014, the then Government of Montserrat in-filled the last remaining coastal wetland (of cultural as well as biological significance) and destroyed a coastal hill to provide the fill, even though there was no specific purpose for this land and no effective environmental impact assessment had been made. There was much public outcry about this needless destruction. The Montserrat National Trust felt strongly that something should be done to ensure that construction of the new capital and the other necessary development should take an environmentally (and, via this, socially and economically) sustainable course to prevent further unfortunate situations. By empowering the Department of Environment and Physical Planning Unit, through working with technical experts to remove blockages and create a more efficient system by which environment is integrated into planning, some way towards this output could be, and now has been, achieved.

*Pro-bono* input (estimated as worth £27,000 at NGO, rather than higher consultancy, rates) was provided by two international experts from Treweek Environmental Consultants, both of whom are experienced in undertaking environmental audits for international funding bodies, as well as in Environmental Impact Assessments (EIA) including in developing countries. TEC visited Montserrat with the UKOTCF team in November-December 2016, to review practical implementation of the existing EIA system with respect to mainstreaming of biodiversity. Through stakeholder interviews with members of the Planning Development Authority (PDA, which takes planning decisions with the technical support of PPU) and others, basic resource constraints were found to be impeding the abilities of competent and committed local personnel in ensuring that biodiversity constraints, risks and opportunities are recognised by the EIA system and suitable mitigation strategies were developed. The visiting consultants spent a week conducting individual and small-group discussions with key stakeholders, which was found to be the most effective way to gather information and answer questions, and an initial feedback session was held with them and a variety of other personnel. As agreed the log-frame was amended (July 2017) to reflect accurately the way in which the project has adapted to needs of GoM in order to achieve the project goal, specifically under output 1. This was so as to ensure that a solid EIA platform would be in place to support effective consideration of biodiversity and ecosystem services in the planning system. The recommendations were included in the report noted (Annex 7). Simple approaches, considered to be achievable with existing resources, were identified and advice was given on implementation. These included: example terms of reference for a development project, with an annotated section on biodiversity, a draft checklist for considering biodiversity issues and impacts in EIA and the Conservation and Environmental Management Act (CEMA) schedule 1 activities. The full report on this and other activities in this output was prepared by March 2017 and circulated to local stakeholders for checking. The report was finalised and is appended (Annex 7). This fulfils measurable Indicators 1.1 (Following consultations, clear recommendations set out on how to take environmental considerations into account in physical planning procedures, and on any further information needs for this.) and 1.2 (Following consultations, clear recommendations set out on needs to reconcile the Conservation and Environmental Management Act and the Physical Planning Act, and on securing necessary resources.).

Briefed by the visiting consultants, the Project Leader also conducted a follow-up meeting with Montserrat's Premier and the Minister for the Environment, to discuss implementation of the recommendations – which they wish to do. As a result of the report, and of informal discussions with, and advice to, officers in both Department of Environment and Physical Planning Unit dealing with these matters, pre-application advice is utilising the recommendations, and procedures in the PPU have been adjusted in the light of these, taking advantage of both changes there and the filling of the Director of Environment vacancy. Interactions with Ministers responsible, in years 1 & 2, have resulted in a desire by them to adopt the recommendations, and a request to work with officials, by assisting in preparing the necessary formal cabinet papers. Without this process, there is no formal way to create change in certain parts of the system. The provision of resources, as set out in material for cabinet papers, are important to ensure that changes are made. UKOTCF has provided draft text components, met on several occasions with ministers and officials, and offered further support to new personnel during and after the project. The limiting factor here is the time availability of officials as identified in the assumptions, but the constraints on this are being minimised by project personnel undertaking work where possible. However, the commitment supply of information in suitable format has been met, thus fulfilling Measurable Indicator 1.3 (Recommendations converted into format suitable for officials to take action or to edit into papers to put before Cabinet, as appropriate.) Accordingly, Output 1 has been achieved.

## **Output 2. Better local capacity to address development and conservation issues and support this by biological databases**

Before this project, Montserrat suffered from a common challenge being faced by many UKOTs (one which is being addressed by Darwin Plus, UKOTCF and others) that it did not have access to large amounts of research data collected on its biodiversity.

In particular, little was known locally about the earlier research on invertebrates gained during the Centre Hills biodiversity survey or the analysis carried out since 2005, including some interesting discoveries. Without this knowledge, planning decisions, conservation actions and management – especially important for endemic and range-restricted species and those providing important ecosystem services – could not be based on science.

The Government and the Trust did not have a mechanism in place for reaching out to the community with this knowledge; nor did it have a way to deal directly with some major threats to its biodiversity, e.g. invasive species.

To make a start on providing access to this information, project partner Montana State University aimed to address this with the creation of a portal and database, populated, in the beginning, with the West Indian Beetle Fauna collection, curated by MSU (and including information captured from other institutions), with the intention that it would be possible to add other groups in due course. A graduate programmer was recruited to build an individual portal for Montserrat, as had been done previously for *Bumble Bees of Montana* (<https://tinyurl.com/k24c2l2>), so that this information can be accessed. The portal we have established to this database is called the *Montserrat Virtual Museum of Natural History*. This achieves Measurable Indicator 2.1 (Locally accessible database available and training in its use developed). Note that, at the time of writing, the link to the full system is out of action, due to replacement of systems in progress at the shared university database computer, but MSU has budgeted (from outside the project) extra resources to deal with necessary adjustments and that work is in progress. The situation and its solution, together with the anticipated timescale to full restoration this summer is described in Annex 18.

While public access to the full system is temporarily not available, so that full interrogations are not possible, MSU has made available a demonstration site, with the general structure of the portal and some feature pages. This can be accessed at <http://mtent.org/mvmnh/>. A few screenshots from this are at Annex 19.

The data capture, digitisation and entry was completed, by two students (including one from the Caribbean) recruited by Montana State University, for a total of 14,656 specimen records from 800 species of 13 orders. These consisted principally of beetles, because it was best to make one taxon comprehensive in establishing the system. This took some time as all specimens have to be labelled with an individual bar code. Subsequently, it will be much easier to add other taxa as resources become available, notable priorities being invertebrates including bees and butterflies, which are important pollinators, and katydids which are important food source of the oriole and other endemics. This system has the potential to link to work of others, e.g. the extensive work done by RBG Kew in their online herbarium. It could be replicated in Caribbean UKOTs. This achieves Measurable Indicator 2.2 (Data entry for Montserrat beetle information captured, digitised and held remotely and repatriation achieved).

The appearance of the pages was discussed with a wide range of potential local users in individual consultations and a feedback session at Montserrat National Trust in June 2017. Suggestions included, amongst others, a simple scientific guide to help non-technical experts identify beetles on-island. A report by UKOTCF, with feedback from those attending, was given to MSU to help finalise the system, as well



as note future possibilities. Workshop participants held at the MNT facility included 20 potential core-users, e.g. government leaders in data-systems for statistics, GIS, environment & planning databases, NGO personnel, a high school science teacher, and undergraduate-level students. The enthusiasm for information at a local scale generated via the workshop (and public lecture and radio) provides a basis on which to engage the community in conservation efforts and a greater appreciation for how important invertebrates are. These training and consultation sessions fulfilled Measurable Indicator 2.3 (Local personnel trained in data-system, and using this). Inevitably, queries will arise as Montserrat personnel use the system increasingly, and MSU and UKOTCF are committed to continue input to deal with these.



Figure 3: High resolution of *Chrysobotheris marskeae*, an island endemic

The portal, created by a computer programming student, has many features, including the ability to see a high-resolution image (see below), immediately where each specimen has been collected, and information about each record. This will enhance resources for conservation and long-term security and management of biological data for Montserrat and thus, this element of Output 2 is achieved.

The creation of the system changes the way in which those on island have access to biological information, as it is openly available. It will have a variety of uses. Decision-makers such as DoE and Physical Planning will be able to integrate information into the National Environmental Information System under CEMA and the Island Development Plan when renewed for 2020 and beyond. It will provide a tool for education opportunities, including (as noted by the High School science teacher) on the importance of invertebrate fauna: pest control, pollinators etc. It can provide important information to other Government Departments such as Health, Pest Control and Statistics. A major change is the fact that no information was previously used to promote invertebrate fauna. Another important change is the ability to export information on to local systems, should this be required for mapping work etc. Although it is anticipated that the MVMNH will be the main means of using the database, the Department of Environment has confirmed that the ability to download a copy fulfils a legal requirement that datasets be held within the territory.

An additional achievement unforeseen, but important as much baseline data on Montserrat's invertebrate fauna is still lacking, a new species of fly was described (see research papers, Annex 4) as a result of the inclusion of self-funding researchers during Dr Ivie's trip. Further new species are expected as analysis proceeds. The visit of four researchers from MSU, combined with the workshops and lectures, provided further opportunities to collect specimens and fill in some gaps in knowledge, particularly species associated with crops (in order to document potential pest species which could have an impact on agriculture) and coastal areas (which potentially could be impacted by sea-level rise caused by climate change), and a start on other taxa, including long-legged flies as mentioned above.

The second element of output 2, involved working on ways of addressing invasive species, and other aspects of restoration. This was a major activity, led by MNT, particularly from the second half of the first year of the project. A first important step (core for this element of the project and essential support for others) was the recruitment of a local Project Officer, who was well qualified, experienced and effective. This was achieved and, although he was not immediately available at the project start, the quality of work has rapidly made up for this, achieved despite problems in Montserrat's infrastructure, particularly impacting power supply. This fulfilled Measurable Indicator 2.5 (Local post filled and operational).

A report (Annex 20) of the invasive species posing the greatest risk to native wildlife was produced early in the project, to guide some aspects of the work. *Adopt a Home for Wildlife* initiative has been developed as the most promising current way of addressing some of these, mostly the invasive plants, especially those for which present techniques make island-wide eradication impracticable. Instead, removal and exclusion of these from voluntarily managed areas give the best prospect for maintaining and restoring wild populations of endemics and other native species. This embraces aspects like site-cleaning, targeted removal of invasive species, particularly neem, *Casuarina* and others, planting of native species (especially those threatened), installation of interpretative materials, etc. Already, 11 sites (involving about 100 participants) are in progress and offers/negotiations are in progress for others. In just over its first year of operation, about 75 acres (30 ha) are being actively managed for conservation by residents. The *Adopt a Home for Wildlife* participants are providing an enthusiastic local unpaid workforce, working under the guidance of the Project Officer, and with a long-term commitment to, and understanding of, their home areas.

More examples are reported in the project newsletter *Saving Our Special Nature of Montserrat* (Annexes 10-15). The element of local discovery of better approaches by interactions between the volunteer teams

and the MNT project officer is an important change achieved, reinforcing local “ownership” of the initiative.

An additional achievement, which enhanced greatly this aspect of Output 2, was that additional resources, not just from local businesses and persons, but also through the BEST EU grant (€88,810 project 1667: A nursery for endemic and key native species, Montserrat. It is important in that it provides native alternatives to plant, once invasive species are removed, so the latter do not repopulate, and for other benefits such as providing shade etc. Other advantages include reduced maintenance costs as plants are well adapted to climatic conditions. Already, 23 native species are being cultivated for use in *Adopt a Home for Wildlife* and other sites (reduced from a planned 30 species due to seed-loss in the severe hurricanes of September 2017 – noted in assumptions, but these could not have predicted the exceptional Category 5), but the number will continue to increase progressively with the increased nursery capacity resulting from the programme, as well as for sale for other uses. The actual number of plants supplied will build up steadily and vary with the annual cycle in individual species. To give an indication of initial scale, the initiative is on course to provide about 1000 plants (including 100 in the first batch of native palms) during summer 2018, building up to 3000 plants in November. This is for seasonal reasons and fitting in with adding the planting of native species into the annual Tree Planting Day, previously limited to fruit trees. This came about as a result of one of the project meetings involving DoE, as there was discussion about linking up; in addition, there was some scope for future work whereby native plants, including agave, could be used in conservation projects and offered to the community as a conservation alternative to expensive fencing (which is easily stolen by others for use elsewhere).

This link between MNT and DoE is an important change as there was nowhere for land-owners and developers to obtain native plants from a reputable source. DoE aim to encourage developers to acquire plants for landscaping from MNT. 330 school children are learning about propagation and other conservation matters in a continuing programme at the MNT, thereby planning for the long-term expansion of this initiative and future generations.

Furthermore, the PO encouraged other MNT members and other interested persons to receive training from orchid specialist Tony Tangkai from Trinidad, on propagation of the endemic orchid. The MNT now has facilities to do this on-island and has already seen results. In addition, a visiting US botanist provided advice and loaned equipment for removal of strongly rooted invasive plants.

These very fully achieve Measurable Indicator 2.4 (Information on current status of invasive plants in the open zone collated, and management and control strategy developed and initiated).

### **Output 3. Plan for the restoration and management of Montserrat’s Exclusion Zone**

The southern two-thirds of the island are isolated from the rest of the island as a result of volcanic activity (see map on page 2). This area is fairly regularly visited by the Forestry Department and it is known that the area is rich in biodiversity, although this has not yet been quantified. That said, it is also apparent that feral animals, mostly goats, are having a major adverse impact on the vegetation in the area (e.g. removal of understory, erosion, consequent facilitation to invasive plants). Some bodies have attempted to address this, but without prior wide local consultation, which is now needed. This is important because most of the land is privately owned. As the island is in a period of relative volcanic inactivity, this area is becoming open to day-tours, particularly in the Plymouth area. As satellite images indicate, erosion caused by feral animals has already had significant in the north (see analysis on page 2 and in Fig. 2 above), and increasingly in the south; the image is a warning sign of what could happen. Actions to counter this in the south could result in the restoration of tropical forest, with potential economic opportunities, e.g. nature tourism, as well as major conservation benefit.

A cross-sectoral consultation system was established, with Ministerial support, and a series of 4 workshops on the future of the south were held, with wide participation (Annex 8) and reports produced (e.g. Annex 9). The purpose was to get wide stakeholder agreement on priorities for the south.

At the start, and given the complications of land ownership, the outcome could not be predicted. However, it rapidly became apparent, after the first workshop that a slightly less detailed vision, with agreement on priorities, would achieve wide agreement. This was potentially much more useful as a tool for future seeking of resources for implementation of actions and generally followed the wishes of stakeholders. This was achieved and represents a major change and step forward. Whilst this, in itself, is not enough to make sure that the issue will be addressed in the future, without this, there would be virtually no chance of securing both resources and local agreement to deploy them. This fulfils Measurable Indicators 3.1 (Full local consultation system to input into widely agreed strategic vision for the use of the Exclusion Zone, emphasising restoration of natural ecosystems, developed) and 3.2 (Information on the resources required for the plan development phase (e.g. financial, technical assistance, other human resources) available).

Reports of all four workshops, leading to the shared vision, were circulated to all stakeholders, welcoming correction. Messages of note, but no corrections, were received, and the records were

confirmed. The vision can be found in Annex 1, section 5 of the final workshop report (Annex 9 to this document). This fulfils Measurable Indicator 3.4 (Integrated strategic vision for environmental restoration and management of key areas in the Exclusion Zone produced).

The summary Vision Statement is: ***Maximising the benefits from the potential usage of land in and near the restricted zones of the south in a way that will protect the special biodiversity in support of the people and economy of Montserrat into the future.***

The participation of diverse governmental and non-governmental stakeholders (not just conservationists) throughout the workshop series is gratifying, as is the enthusiastic participation in all the workshops of the responsible government Minister. With a change in Ministers before the last workshop, it was encouraging that both former and new Ministers welcomed each other's continuing involvement, as was the fact that the former Minister facilitated the discussion to finalise the Vision Statement, which was endorsed by both. They both too welcomed the final outputs being used as the basis for further action and of funding proposals to resource this.

*SOS Nature of Montserrat 5* (Annex 14) outlines the thoughts of both former and current Environment Ministers on the progress that was achieved from these workshops.

Assessing resource needs for action were brought together as part of new project applications led by UKOTCF with direct input from DoE, MNT and other partners. Although these were unsuccessful, further proposals will be made.

With one of the main concerns to the biodiversity of the south identified through the workshops as being the presence of feral animals, UKOTCF made contact with island eradication/ restoration specialists, including Biz Bell, Wildlife Management International (WMIL). She has led a number of eradication projects on islands around the world including UKOTs in the Caribbean and South Atlantic, UK and elsewhere. This included previous advice to Montserrat in the early 2000s. Ms Bell had a number of suggestions regarding management options and was of the shared opinion that the first step would be to carry out a scoping exercise to evaluate the current situation and potential approach. WMIL have agreed to offer their services, subject to funding being secured to move this forward, and will donate loan of the equipment required.

One change which occurred was the enthusiastic agreement secured from the company owning the main part of the remaining important forest area, Roche's, in the south. Previously, support for any activity on their land (which is unlikely to be habitable) was hypothetical. Several meetings with a key member of land-owners were held and a presentation to the full company board was given.

Discussions with the Tourism authority and local operators demonstrate a strong desire on their part to realise the tourism potential of the south, and to integrate and share costs with conservation initiatives. The change achieved was that Tourism now understands that this area needs to be protected as an ark of biodiversity as it has many unique features (bat caves, stands of bamboo etc), but understands the need to ensure that any activities are sensitive given the importance of the area. Use of the south for tourism is currently limited to visits to the Pompei-like volcanic-destroyed capital, Plymouth, but there is interest by the Tourism authority, the local helicopter company (Emerald Isle Helicopters) and the experienced local guide/naturalist (Scribers Tours) to expand from overflights to visits of a few hours on the ground, integrated with conservation measures and the research underlying these. Initial ideas have met with wide support, but this will need the further conservation studies identified and further coordination with the Health & Safety authorities, who were all positive in the workshops.

Volunteer input was secured to contribute to facilitation & reporting of workshops, ecological & restoration aspects, and some GIS analysis. This initial analysis has facilitated: general planning in the south focussing on conservation, comparisons with areas in the north, identification of initial targeting of priorities for those *Adopt a Home for Wildlife* sites becoming accessible in northern parts of formerly restricted areas, identification of areas of the south at high risk of damage and erosion due to feral animals, and other purposes. Subsequently (as noted elsewhere), there was mutual collaboration with new JNCC-contracted Environment Systems to produce a habitat map of Montserrat (see newsletter 6).

In addition, a good deal of expert insect field-survey and subsequent analysis was contributed, and this included those parts of the south, which could be accessed and have been in the past.

The new local helicopter company, run by pilots experienced with Montserrat and its volcano, has provided much technical advice and time, including participation in the workshops. The company was helpful too in adjusting its schedules and giving favourable rates for flights to allow MNT and UKOTCF personnel to conduct a scoping trip from the air to help assess current information and in preparation for follow-on project proposals/ funding bids, as envisaged in the vision. This fulfils Measurable Indicator 3.3 (Volunteer expert input to the project achieved).

#### Output 4. Project managed and delivered

Effective management was achieved, despite some long-term national infrastructure problems causing repeated power failures and communications failures in Montserrat, crucial to project meetings via remote facilities (e.g. Skype), throughout much of the project, and serious impacts of hurricanes in September 2017. An awareness of the impact of the hurricane season is well known to all project partners and so was anticipated (in assumptions). The way in which this was dealt with was with flexible working conditions, which allowed officers to work intensively during favourable conditions and less intensively during less favourable conditions.

Overall, the planned 4 physical project team meetings were held plus one additional one, and frequent additional communications by Skype (or other means during hurricane-caused internet failings) throughout, averaging between weekly and monthly between UKOTCF (including project leader and others) and MNT (local lead, including the project officer), depending on needs and the nature of work at the time. This semi-remote co-ordination has been developed successfully by UKOTCF in projects over many years may be another aspect of the project which is transferable to other Darwin Plus projects in the UKOTs and Darwin Initiative projects in the developing world.

Meeting notes recorded progress in meeting the outputs, follow-up and general discussion on issues relating to the project.

UKOTCF Council, in its quarterly meetings, has also reviewed project activities against the project outputs, in papers prepared for the meetings.

As requested by Defra, the programme has been adjusted to cope with the fact that the value of the grant has been reduced by about 15%-20%, due to the effective devaluation of the pound sterling following the 'Brexit' vote (June 2016). This adjustment has been achieved by relatively small adjustments to the work programme, extra donated work by UKOTCF and consequent movement of funds between sub-headings (managed within standard virement limits).

Overall, project progress approximates to the planned schedule, subject to adjustment of balance of content in Output 1, better to match improved analysis of priority needs identified as part of the project progress. In addition, as mentioned, there was a delay in the Project Officer being available to start work at the planned rate. However, some extra work (donated) by UKOTCF and the Project Officer's work since have overcome this.

These fulfil Measurable Indicator 4.2 (Management of all aspects of the project, including local and remote meetings.)

In order to present the projects achievements and lessons learned to the local community and a wider audience, a large amount of sharing of information was done, for example:

- UKOTCF newsletter *Forum News* (46, 47, 48), as well as mentions in 2 other articles (in addition to general articles on Darwin Plus in most issues). *Forum News* is circulated widely in UK, UKOTs, CDs and elsewhere, with a basic circulation to over 500 individuals and organisations, most of which have multiple readers and many of which are copied on; in addition, the newsletter is freely available on UKOTCF's web-site.
- Links to these on independent web-sites, list servers (e.g. EU Overseas Google group; several Caribbean regional ones) and through social media routinely note these, vastly increasing the effective circulation.
- Social media, notably Facebook postings, over 4000 being reached in the most popular posts relating to the project activities. Tweets relating to the project have tagged @Darwin\_Defra and various others. (See Annex 16 for examples of some of the most popular posts).
- Two research papers published so far (see Annex 4).
- During the mid-2017 visit, UKOTCF chaired a presentation by MSU at the MNT on endemic invertebrates, attended by over 50 people (or 1% of population), including the Governor.
- Project newsletters called *Saving Our Special Nature of Montserrat* circulated to over 80 people (who are known to copy to many others). General public support for the project is evidenced by unsolicited positive comments to the first six issues of the project newsletter, and the interest and informal feedback.
- Six broadcasts (plus some news items) giving extended project interviews on Montserrat's national radio station have resulted from the 5 visits of the project team during the project period. Most people in Montserrat and many others, including the large diaspora population, get their news from Radio ZJB (both broadcast and online). One of the most popular programmes is Rose Willock's Saturday morning Culture Show discussion. The Montserrat Radio (ZJB) programme editor advises that an average of about 5% of Montserrat's population listen to each of these. During all five project visits, the project team (Montserrat and visitors) had prolonged interviews in the programme. In addition, there were several further interviews and other reports in the

news bulletins, parts of which are syndicated across the OECD region. In the June 2017 show, Rose suggested that the satellite images should be shared on social media so that all (particularly the youth of Montserrat) could see the wonderful images. UKOTCF posted some of the images, based on those made available courtesy of DigitalGlobe Foundation, as one of the efforts to engage with young people on-island. Over 4,000 people (equivalent to almost the total population of Montserrat) were reached by the post, with comments such as “#home”.

- The team has met with the editor of the newspaper, the *Montserrat Reporter*, on 3 occasions, resulting in printed and online articles.
- There was also a special announcement prominently flagged on the then UKOTCF home-page ([www.ukotcf.org](http://www.ukotcf.org)), with links on its social media sites, at the start of the project. UKOTCF’s Wider Caribbean Working Group *eBulletin* (circulated to over 90 key active persons/organisations in the Caribbean and elsewhere) has carried 6 articles on the project.
- Both through UKOTCF’s Wider Caribbean Working Group regular Skype meetings and during territory visits and individual discussions, UKOTCF has explored with other UKOTs the potential extension of the approaches developed by the project in Montserrat. This has resulted in major and enthusiastic interest by other territories, especially in the *Montserrat Virtual Museum of Natural History* and *Adopt a Home for Wildlife*.
- In autumn 2017, an article on the project was featured as a guest blog on the website [seedball.co.uk](http://seedball.co.uk). This is private company, based in the UK, which sells seed-balls of wildflowers to encourage pollinators in gardens, nature reserves etc. The blog outlined the project and the information we know – and so much we do not – about Montserrat’s endemic invertebrate fauna. The article was tweeted by Seedball, which has around 30,000 followers. It included information on the Darwin fund and Darwin logo.
- In addition, UKOTCF has helped MNT with related dissemination and education, including via the posting of newsletters on UKOTCF’s Facebook page (January 2018 MNT newsletter reached 246; *SOS Nature of Montserrat* April reached over 700). Several related items fall outside, but are closely related to, the project – for example, help on a book for children on the special wildlife of the island, complementing UKOTCF/MNT earlier publications for adults, and wildlife videos. The project has, in combination with other initiatives, facilitated MNT undertaking more outreach work, via both school programmes and via training and lectures for adults.
- Article in the Darwin newsletter, November 2017, page 19.

These fulfil Measurable Indicator 4.1 (Reports and articles on lessons learnt on UKOTCF and other websites and social media, *Forum News* articles, presentations at meetings and conferences).

### 3.2 Outcome

The outcome of the project was achieved, namely “*Strategies for Island-wide ecological sustainability and the enhancement of endemic species-survival in place, taking into account the interaction of volcanism and human-activities, to include strategic vision and varied management approaches, and biological recording, in both open and exclusion zones*”. This was despite many components, put together as an ambitious project with many partners. We acknowledge that this is challenging (and may put off potential funders), but UKOTCF aims to address needs as identified by those in territory, whatever they may be, bringing in experts (most of the time on a *pro-bono* basis, such is the good-will towards a special place such as Montserrat) to provide the best possible advice and skills to address these.

As was noted in the logical framework, “direct measurable biological results are impossible within the 2-year limit of current Darwin Plus projects”. However, indirect indicators are noted:

Indicator 0.1: Results of development proposals show that environmental sustainability is being taken into account.

A wider scope of environmental assessment is desirable than that within current physical planning legislation, and proposals in respect of areas of legislation needing attention have been identified and advised by the project (Annex 7).

Those aspects of recommendations which do not require legislative measures have largely been implemented and there is some evidence that sustainability has been taken into account in plans. These include, for example, pre-screening used by DoE for proposed developments by DoE. This results from the Treweek & Hruza report, individual interviews and informal discussions with the key persons by Treweek Environmental Consultants, and follow-up by UKOTCF personnel. (As the interviews were conducted on a confidential basis, to encourage frankness, the interviews themselves, as opposed to their analysis in Annex 7, cannot be appended.)

With regard to those aspects that require Cabinet decisions and/or legislation, UKOTCF has discussed with Government Ministers who have confirmed their support, and asked UKOTCF to help their officials

to prepare the necessary papers. This is in hand, but the papers cannot be appended to this report because they constitute advice from officials to their ministers, which are routinely confidential in British-based systems. However, the situation is confirmed in a letter from the Director of Land Management, copied also to the former and present Ministers, the Director of Environment (Annex 17).

#### Indicator 0.2: Human and supporting infrastructure improved

1. Provision of a Project Officer at the Montserrat National Trust, and UKOTCF working with him, have resulted in the *Adopt a Home for Wildlife* scheme, which is proving both an effective way to maintain native plants (and some animals) against invasive and other pressures, and a means of strengthening local “ownership” of the natural environment (newsletters 1-6, Annexes 10-15).
2. This provision has also increased general capacity at the Trust, which has, in turn, enabled further support for this project to be secured, to provide both a native plant nursery to complement *Adopt a Home for Wildlife* and provide more time for the Project Officer to deploy, resulting in several supplementary projects which have also led to the proposed outcome being achieved (see newsletters 3, 5, 6 – Annexes 12, 14, 15).
3. By shortly after the end of the first year of *Adopt a Home for Wildlife*, about 75 acres (30 ha) were under voluntary conservation management, including areas cleared and, where appropriate, replaced with native vegetation. Some of these are areas of globally rare tropical dry habitat.
4. So far, 11 teams, including about 100 individuals as a body of volunteers, have worked on this. Examples of achievements of the initiative include: land-owner Tim Orton putting his 4 acres of rare and threatened tropical dry-forest habitat near Garibaldi Hill, south of the Belham River, under management guidance of the initiative, to work with MNT to remove neem and other invasive plants and then, in his words, “do as little as possible to the land so that it can develop as naturally as possible.” Collections of invertebrates here will be analysed by MSU team, as this is a habitat on Montserrat for which there has been limited, if any, previous survey. Under the guidance of MNT officers, Dwayne Hixon has removed dense stands of invasive *Casuarina* from the land he manages at Old Road Bay. There is a marked improvement of the area in terms of its appearance (see *SOS Nature of Montserrat* 4, page 9) and this site also represents a shift in local thinking, from bulldozing an area to start from bare land and bringing in non-native plants for landscaping, to removing carefully the vegetation which has a negative impact on biodiversity, but keeping those that perform an important function, e.g. ‘sea-grape’ for coastal defence. The cost of careful removal and replacement of invasive plants was estimated by one ‘adopter’ (Mr Orton) as equivalent to bulldozing but gave more local employment as well as retention of more of the native flora and fauna. (Of course, the benefits of the careful method then continue to make this method cheaper, as fertilizer and irrigation costs will be less). It gives an opportunity to promote this method with local landscaping businesses. At the Old Road Bay site, the project interacted with the developer to recreate coastal ponds, recently lost to Montserrat due to volcanic flow filling some ponds and inappropriate development filling others. As soon as these ponds became available, they were used by migrant shorebirds. This change in approach is showing immediate results for biodiversity.
5. Satellite images, with ground-truthing, secured and analysed, as well as training provided. Amongst many other potential uses, this has already helped in identifying further priority and feasible areas for removal of invasive plants (see newsletters 3-6 in Annexes 12-15).
6. Initial improvements made to integrating environmental aspects into physical planning, with recommendations made also for those further ones which require Cabinet decisions and/or legislation (Annex 7 and above).
7. Recommendations made for working towards a sustainable funding mechanism for conservation, through the Montserrat National Trust (see Section 4 below).
8. Database and portal system designed and implemented, as a permanent product for Montserrat decision-makers, planners, conservations, educators, students and anyone else, without significant on-going costs for Montserrat; and the first module, for beetles, populated (see newsletters 3-6, Annexes 12-15, 18, 19; and <http://mtent.org/mvmnh/>).
9. Incorporation of some aspects into various levels of education, to help embed these approaches in the long-term, as well as increase local capacity.

#### Indicator 0.3: Strategic vision in place for resourcing and implementing an environmentally sustainable management plan for the Exclusion Zone, re-establishing natural forest and tackling invasive species.

A widely agreed vision, with priority aspects, was achieved over a series of 4 workshops, with the participation of many stakeholders and ministerial endorsement and support. The summary Vision Statement is in Annex 1 of final report (Annex 9). It recognises the immediate concerns of stakeholders, looks at challenges, and brings together views on how to ensure that this area is managed in the future, subject to securing resources (for which this agreed vision is a pre-requisite) and to access issues being

adequately addressed. A clear priority was for a scoping review of the practicalities of dealing with the feral animals (for the whole island) in this challenging situation. Partners were identified and are willing to be brought in for this. Progress here would allow effective conservation, as well as other opportunities e.g. tourism, for which there is great local interest.

### 3.3 Long-term strategic outcome(s)

High-level support for the project has been a major strength in enabling it to meet its objectives. Ministers have indicated a wish to implement the recommendations arising out of the work of the project specialist consultants and Montserrat personnel (to some extent reported in project newsletters and reports – Annexes 10-15 – and supplemented by a meeting between Premier, Environment Minister and Project Leader) in terms of environment considerations within planning and development.

The Project Officer, recruited on Montserrat and supported by the growing local volunteer assistance, has allowed the Montserrat National Trust to break-out from the bottleneck which has, over the last few years, prevented new initiatives from being undertaken. The PO's role has enabled the Trust to undertake new work on behalf of the local community, not just as part of the project as outlined but by the additional three projects which took place as a result of its initiation: 1) creation of a native plant nursery; 2) orchid propagation materials and training and 3) habitat mapping project. This new role has impacted the local community, particularly as it has given many a focal point in order to gain knowledge and confidence to manage their land or surroundings via the *Adopt a Home for Wildlife* initiative. It has identified and developed a major potential local capacity for practical conservation support in the local community, which can be maintained long-term (see project newsletters 2-6, Annexes 11-15). It has influenced the local community successfully, as many have become more involved with additional Montserrat National Trust activities (such as plant propagation training) as a result and, in doing so, are making decisions about land management, which benefit biodiversity. This is because the initiative provides mutual benefits for the 'Adopter', in terms of advice given, money saved by retaining native trees and a supply of appropriate plants for free and, for the Trust and conservation generally, in contributing towards maximising the area for endemics, and maintaining areas free of key invasive species. The impact on several areas can be seen in the project newsletters (Annexes 10-15).

Despite seed losses due to the September 2017 hurricanes, by the end of the project 6 months later, MNT was cultivating 23 native species in its nursery, for use in *Adopt a Home for Wildlife*, as well as for sale to others. Around 3000 native plants are expected to be supplied per month within a few months of the end of the reported project. Both these measures will increase as the flowering seasons of other species are reached and as the nursery capacity increases. This is a long-term asset and facility. For several species the impact of this work, is that the area and population size where they are found is being increased. For example, see broom palm articles in project newsletters 4 (p. 18) and 5 (pp. 16-17) – Annexes 13 & 14.

The development of the nursery has enabled the MNT botanic garden team to begin a grow-pot recycling scheme. Previously, single-use bags were used. Now, when provided plants have been planted in the ground, pots are returned. The pots are now in circulation and this kind of system can be replicated in other areas to strengthen sustainable use, which the Trust is championing, leading by example. The impact of this is less use of plastic which does not break down and can end up in the ghaunts (streams) or the sea. The *Adopt a Home for Wildlife* initiative is the pioneer for this sort of scheme on-island.

The Montserrat Virtual Museum of Natural History represents a major novel initiative for the region and UKOTs, with some similarities with [RBG Kew's online herbarium](#). It provides a system to make material widely available. It puts in place the first (and largest) taxonomic group, making the future addition of others much simpler. The system has no cost to Montserrat, and does not suffer from the high risk in small administrations that periodic budgetary constraints put a local collection or database at risk. In addition, insect collections are extremely difficult to maintain in tropical conditions, and may require replacement of specimens every few years – but this would be impracticable both in terms of finance and skilled person-power.

The resilience and utility of the database will be strengthened with the increasing local expertise. Several senior students and young professionals expressed interest in taking up insect studies, and MSU, MNT & UKOTCF offered continuing help to them. A small number of students already had a serious interest in insects, and the team will explore ways of supporting this capacity, with the potential of achieving a much needed local entomologist. Stephon Hixon, who is on a Government Youth Programme and is training with the most experienced local guide/fieldworker to be a conservationist, joined the entomologists for much of their time while on-island. This gives him another aspect to his knowledge, learning how to put up sampling traps and identifying species, as well as guiding people in difficult terrain that he is familiar with. The possibility of fellowships with MSU or other appropriate institutions is being explored for suitable local students, but will fall outside of the scope of this project (one option which is being explored is Darwin Fellowship).

In the challenging matter of the future of the south of Montserrat, stakeholders from all sectors confirmed, in the project workshops, their shared wish to agree a common plan (Annexes 8, 9). This is a long-term goal which all recognise will have many components. Current member of the Legislative Assembly and Former Environment Minister, Claude Hogan, said in the final workshop: "*What we have entered here is the beginning of a whole new chapter. Some of us may not be around at the end, but our names on the attendance sheet show that we were here at the start, to safeguard our environment and our own livelihood. This exercise now has the evidence that the people of Montserrat buy into this exercise. What we are doing here is beyond formidable; we are now worrying about the bigger picture, we have moved beyond our own backyard. Thanks UKOTCF, all Ministries, everyone; the secretariat of volunteers has produced documents which are the heritage of Montserrat.*" His words were echoed by the new Environment Minister, David Osborne.

Public awareness of the intrinsic and potentially economic value of Montserrat's wildlife has been increased by project newsletters (Annexes 10-15), radio broadcasts and events. A particularly good example is the major progress achieved in local awareness of insects, the exceptional number of endemic species in Montserrat, and their key roles in the ecosystem. A lecture, as well as a question-and-answer session, by the Montana State University team was attended by HE Governor Carriere and about 1% of the territory's population, many of whom were so interested that they asked for readable copies, so that they could study further and show those who had not been able to attend. National radio recorded the entire lecture for repeat the following week, and also supplied a copy of the lecture on a memory stick. In addition, an extended live radio chat was undertaken for nearly one hour in the series of project broadcasts on one of Montserrat's most popular programmes. This high proportion of the population informed in general, as well as school students reached by training, and the more engaged volunteers in the *Adopt a Home for Wildlife* initiative and those who participated in the various workshops, has generated a proportion of the population generally supportive that would be the envy of many larger countries.

New initiatives developed, for potentially wider application in other UKOTs and elsewhere (as well as further aspects in Montserrat), included the advances in access to biological collections, specifically invertebrate fauna. Use of satellite imagery and of some free software such as QGIS was initiated, and results used. The balance of work on this was changed in year 2, because extra capacity became available (with greater resources than were available within the project), funded by JNCC through Environment Systems). Therefore, the project collaborated with this, by providing its expertise in ground-truthing (with much more expertise in local vegetation), with MNT benefiting by increased experience with the tailored software for continuing use. This is an important resource for those with resource constraints, particularly for ongoing monitoring of remote areas and which is unpopular to fund in the long term. They highlight how UKOTCF's long involvement and contact, not limited to single projects or short-term, is key to progress for local conservation bodies in the UKOTs.

In terms of value for money, the Darwin Plus grant has enabled the capture of at least 245% of that amount in additional resourcing within the project period and an estimated further 37% per year in future years. It is important to note also that the long-term continuing relationship of UKOTCF with UKOTs, and its lack of an alternative business or agenda, mean that the project purpose and priorities is closely focussed to local needs, rather than the priorities of one or more UK bodies.

Aspects developed at MNT's botanic garden, will continue beyond the project as a facility from which to buy plants, or to receive them free if in the *Adopt a Home for Wildlife* scheme. Supplies obtained during the nursery project include growing containers that are now re-usable, replacing single use plastic bags – with both environmental and financial benefits. In addition, the Department of Environment now have a focal point whereby they can direct developers to landscaping using native plants supplied by the Trust.

## **4 Sustainability and Legacy**

The project proposal itself made clear that there will be a need for continued activity and resourcing after the project (and UKOTCF's relationship with UKOT partners is long-term – over 30 years so far – rather than limited to the duration of a project). For example, the objective of Output 3 is an agreed vision for the south of the island as a basis for resourcing bids, rather than for immediate implementation. The latter would be quite impracticable within a 2-year project – as others have found to their cost when starting without a plan agreed by local consensus.

Particularly within Montserrat, the project developed a project newsletter *Saving Our Special Nature of Montserrat* (as well as radio interviews, meetings, the efforts of local project partners, reports and word of mouth), to raise the profile of this project. There has been strong and unsolicited positive feedback on these. It will be challenging, without resourcing, to maintain the momentum built up during this successful project to move on to the next logical stages. However, UKOTCF will undertake to maintain in the interim, from its own resources, editing, production and circulation of the continuing series, as one approach to this.



Output 1 was designed to help Montserrat increase the efficacy of making physical developments environmentally sustainable. Maintaining these should not require major additional resources, and should make better use of those deployed. The project has made some suggestions as to ways to resource the modest additional costs, which would be desirable. In addition, UKOTCF has indicated that it will provide further advice, as needed, to help move towards remaining required Cabinet decisions and adjustments to legislation.

Similarly, the database aspects of Output 2 were designed to put Montserrat in a better position regarding the availability and utilisation of existing biodiversity information, with additional objectives of improving this information base, and stimulating local interest in invertebrates. Regarding the latter, there is the chance of widening the nature tourism product and consequent employment opportunities. As noted in Section 3.3, the Montserrat Virtual Museum of Natural History is a major asset, which the project has acquired for Montserrat, with no costs to the island either in set-up or running. The data-base running costs are being provided by an endowment-funded US computing system, in which Montana State University is a partner. MSU is willing and keen to maintain the curation aspects of the beetle module so far included. The Montserrat Virtual Museum of Natural History will ultimately include other taxa, as resources for their capture, digitisation and checking become available. Further developments of this, both on Montserrat and as a model for elsewhere in the Caribbean UKOTs, will continue beyond the project. Discussions with the other Caribbean UKOTs in relation to their biodiversity database work have begun, as part of Output 4, using the 30-year established UKOTCF network, and other means.

The outstandingly enthusiastic response to participate voluntarily in the *Adopt a Home for Wildlife* initiative (another part of Output 2) shows both strengthening local ownership and increased activity and capacity, centred on project partners Montserrat National Trust. Whilst such approaches are not novel in, for example, Europe and North America, there is not the same tradition in the Caribbean (for well-understood historical reasons). The challenge will be to maintain, without continuing grant support, the coordination and guidance needed to make use of this effort – and, indeed, to build on it, given the increasing levels of interest. In the short-term the personnel previously employed on the project have volunteered to continue this work on an unpaid basis insofar as possible. However, this is not, of course, a sustainable solution. With the encouragement of governmental and NGO local partners, UKOTCF has been seeking (so far unsuccessfully) alternative grants. It will also launch, in June 2018, a novel funding approach. It is also working with other international partners and MNT investigations into other locally led funding mechanisms (see below).

The native plant nursery, whilst not funded by the project, would not have been able to secure its outside funding had the project not been in place. It represents another important asset for conservation, with minimal on-going costs, although again the lack of a co-ordinating officer will be challenging. The use of reusable pots as a way of generating a small-scale recycling scheme began as a result of this and will continue so that pots can be used over and over again. This represents an important, even if small, legacy, as recycling on-island is not yet developed.

The use of imagery is likely to now be embedded in to all Trust and DoE work, provided of course that some way can be found to maintain the coordinating scientific and conservation role.

A major legacy of the various aspects of the project is a much increased and informed body of support at various levels. These include:

- a cadre of local trained volunteer capacity to take forward conservation in support of Montserrat National Trust and the Government of Montserrat, arising from the enthusiastic response to the *Adopt a Home for Wildlife* initiative;
- the engaged participants in the workshops on the future of the south, now aware of its potential as an ark of biodiversity and possible opportunities its protection could provide;
- school-students receiving training in native plant cultivation and other conservation as well as the importance of protecting what is special about their island;
- MNT membership informed through courses, lectures etc;
- a general public informed through radio-broadcasts, newspaper, lectures etc on the value of wildlife and ecosystems in their own right and for their contributions to the local economy;
- engaged and enthusiastic ministers, supported by officers better equipped with information.

As detailed above, a number of new initiatives will continue after the project's lifespan. The new infrastructure will remain, and the capacity of the few permanent staff has been improved through both formal and informal training provided by the Project Officer. It is regrettable, however, that, at the time of writing, no continued funding has been secured to extend the contract of the very capable Project Officer (who has expressed a desire to stay in post, should the financial resources be available). However, this should not be seen as a failing in the project because this is a continuing problem which it was virtually

impossible to overcome given the limited duration of, as well as the amount of work involved in the fulfilling the commitments to, this 2-year project. It was perhaps not fully acknowledged in our original application that the core staff base of the MNT is so small that no amount of short-term funding would allow them to function to the level and standard that they are currently doing while this additional staff member (and partner who is also on short-term funding from another grant) is in place. This is not a unique situation, but one that we have encountered a number of times during our three decades of working with UKOTs. As a lesson long learnt, we hope to move forward our work with several NGOs, Government funding bodies and private benefactors to help develop a more sustainable method for funding the vital work of financially stretched (and other resource/personnel-stretched) NGOs (and also UKOT government bodies) working to protect the unique biodiversity of the UKOTs. UKOTCF also facilitated an opportunity for the Minister of Environment to attend a meeting of UKOT Environment Ministers where he was able to discuss with counterparts in other UKOTs and other UKOT colleagues how this might work in practice.

Working with the Trust, Government and others, scope for a sustainable fund for conservation on the island has been an important topic. As result of the Government of Montserrat asking for help, UKOTCF facilitated the Waitt Institute starting work on the island in 2015 (which has led to further JNCC-funded work with fisheries as a result) and, with them, we have been providing advice on options available for the Government and the Trust to ensure that conservation is sustainably financed, using best practice and examples from the region and elsewhere. It is important that the difficult task of seeking rare funding does not take up all the time, so that little is available for actual conservation work. It is paramount to understand that, in small conservation bodies, unlike large organisations with many departments, the same people have to undertake both roles.

Also, looking wider than Montserrat, several aspects of the work pioneered by this project, notably the *Montserrat Virtual Museum of Natural History* and *Adopt a Home for Wildlife*, are of great potential benefit to other UKOTs (and elsewhere). As part of Output 4, UKOTCF has been informing other UKOTs, and will potentially partner with them to extend these, subject to resourcing. There is major interest already in some territories.

Consultations between UKOTCF and MNT, together with support from Montserrat Government partners, have led to a major development of ideas, so that the “*Adopt a Home for Wildlife*” sub-project will continue indefinitely beyond the reported project. This is a mechanism by which MNT can work with local land-owners, business people, community groups, schools, etc. who are encouraged to volunteer to assist in some way (e.g. provide access approval, voluntary effort, funding, assistance in kind) in the adoption of a particular area. They then manage it under a plan agreed with the Project Officer, under the auspices of project partner MNT.

Preparations are well advanced to include more activities in the *Adopt a Home for Wildlife*, via the school systems. MNT personnel are maintaining a schools’ awareness programme involving this and other aspects of conservation, and this is resulting in further *Adopt a Home for Wildlife* take-up, including Look Out School, where plans are under development.

## 5 Lessons learned

The project has more qualitative than quantitative outputs. Physical reports and policies produced can be quantified. However, the importance of the qualitative aspect that is more difficult to evaluate directly, but is potentially more important for change – the local buy-in, agreement on the need for a more accountable EIA approach, and a more collaborative and consultative approach for planning the future of the south. This is not a finite project, but one that is going to get the ball-rolling for a more accountable environmental assessment and integration processes and effective data-management. Ultimately, the responsibility will lie with the on-the-ground organisations, and this project is providing the necessary means to get this going. (Also see above regarding retention of qualified project staff).

The following aspects worked particularly well throughout the project:

- Wide cross-sectoral stakeholder participation from Government, civil society, schools, private sector
- Ministerial support despite challenges of a change in Minister during the project
- Effective and well qualified local Project Officer supported by senior managers (MNT/UKOTCF)
- Active public support, enhanced by effective outreach including social media (local champions e.g. Rose Willock, ZJB Radio)
- Using project to leverage further support (e.g. volunteers, BEST funding, DigitalGlobe)
- Major contributions of time by main partners
- Commitment of partners (MOU between MNT, GoM and UKOTCF).

The following aspects worked less well:

- The devaluing of the grant by 15-20% (addressed by extra unpaid work and rebalancing funding)

- Disruptions to communications and work-schedules by chronic power failures and surges several times throughout the project (plus 2+ weeks shut down during Hurricane Irma and Maria)
- Overloaded work-schedule of Montserrat-based partner organisations due to the above factors, illnesses and resource limitations (human and financial), delays in some information-sharing, and unpredictable events (such as 'Brexit' and devaluation of the pound) affecting all partners

Recommendations to those doing similar projects:

- Hiring a qualified person for a part-time mission can be difficult as the population in Montserrat (and several other UKOTs) is limited and cost of living high, so the position needs to be advertised as soon as possible (as it was in this case).
- Have an organisation and activities flexible enough not to be impacted too much by infrastructure constraints (such as power outages, ferry cancellations).
- Welcome the involvement of UKOT-experienced organisations which are able to provide the administration and coordination needed to run a Darwin Project, so that over stretched local NGOs (or small government departments) are not heavily impacted by taking on new work.
- Physical meetings between partners, as well as remote meetings, should be encouraged rather than perhaps perceiving that travel is unnecessary. It can lead to many aspects, which can help the project reach its aims, which were probably unforeseen.
- Welcome any additional partners who may be able to help you meet your goals.
- Volunteers and opportunities for young people to be involved in all aspects of your project should be encouraged as this can be an excellent way to enhance our work and for decision-makers of tomorrow to build up experience in a variety of ways.

Key lessons learned

- Lessons learnt feature particularly piloting work that is already being looked at enviously by some other territories and small-island states in the region (as we know, for example, through cross-territory discussions in UKOTCF's Wider Caribbean Working Group). For example, whilst voluntary conservation work and citizen-science are well established in Europe and North America, they are rare in the region – for cultural and economic reasons arising from well-known historical conditions. *Adopt a Home for Wildlife* was initiated partly as a way of addressing effective conservation of endemic and other native species when it became apparent that island-wide eradication of some invasive plants was impracticable with present technologies but that effective conservation could be achieved practicably by clearing, and maintaining smaller areas free of, invasive plants. The *Montserrat Virtual Museum of Natural History* is also generating considerable interest from other UKOTs. There is interest too in the QGIS open-access software and the potential of the otherwise impracticably expensive satellite images secured free through the project, as well as the potential for citizen-science for analysing this (although this was not included in the proposal and it is early days for this).
- From feedback from radio, social media and lecture participants, there is a general feeling that Montserratians are incredibly close to nature and understand the importance of ecosystem services, but further opportunities for them to learn, especially for school children are needed.
- There is so much more to learn and document about the wildlife found on Montserrat. There are exciting opportunities for research and discovery. However, there are some issues to overcome in term of finding resources and expertise to quantify these.
- Local experts including entomologists are needed to drive forward basic understanding of how biodiversity can contribute to human lives.
- The training offered to local students aims to enable the Trust and others to identify suitable future environment officers. UKOTCF has an established relationship with the on-island organisations, particularly the MNT and DoE, and so had a realistic understanding of the local situation there and what could be achieved.
- Due to a coincidence of dates of visits, it was discovered that DFID were giving out of date advice to the Government of Montserrat on the requirements of international transitional finance, particularly in terms of environmental considerations. Unfortunately, DFID representatives have been unable to find time to meet with the project, but UKOTCF will seek alternative routes to pass this information to DFID.
- The donation of 12 high-resolution satellite images of Montserrat was obtained through a grant from the Digital Globe Foundation, owners of the WorldView satellites. If purchased for commercial use they would cost over US\$55,000. It was made possible for this conservation project through collaboration with our US University partner. Opportunistic collaborations should not be overlooked throughout the project.

## 5.1 Monitoring and evaluation

As is always sensible with ambitious projects, especially innovative ones, we had always planned to modify some aspects of the project as it went along, but ensuring it met its aims. The changes were formalised in response to the first annual report and were accepted. The balance of effort has been adjusted, in the light of clearer needs priorities emerging during the consultation process – which is why the process was designed that way. Although there are lessons learned for other UKOTs, this should be an ‘agile process’ and not a one-size-fits-all approach. This can only be achieved by speaking with stakeholders on-island. Clear recommendations have been made, taking account of the limited resources available to Montserrat.

The project was kept under continual review by the cross-partner project team. This was supplemented by consultations between the Project Leader and Montserrat’s Minister of Environment, who took a close personal interest, especially while the Director of Environment post was effectively vacant due to illness. In addition, all main components of the project involved close interaction, consultation and assessment by people who would be end-users. At the overall level, UKOTCF Council (see [www.ukotcf.org.uk](http://www.ukotcf.org.uk) for profiles of these senior persons with a wide range of expertise) reviews all current projects at its approximately quarterly meetings.

An important element of monitoring takes account of the assumptions/risks in the proposal. The assumptions are listed in italics along with details of how these were addressed.

*That severe hurricanes do not disrupt. Apart from very severe hurricanes (most recently in early 1990s), disruption tends to be short-term.* During the second year at the start of September, with the approach of Hurricane Irma, all key materials had to be packed into secure storage and unpacked after. Fortunately, the hurricane turned and Montserrat suffered only Tropical Storm force winds. The project suffered only a loss of about a week due to the packing/unpacking and periods without power or communications. A few days later, Hurricane Maria approached. In addition to the same inconveniences caused by Irma, the eye of Hurricane Maria passed very close to the most occupied (normally sheltered) side of Montserrat, causing severe damage to trees & power poles/lines and causing land-slides. Fortunately, there were no fatalities and, although many houses suffered roof damage, few houses were destroyed. Re-establishing power and internet has been patchy and prolonged, with some communications lacking into October. Essentially, about a month of work-time was lost, with communications sub-standard for rather longer.

Project personnel in both Montserrat and UK have attempted to minimise the impacts of this. For example, Montserrat staff addressed some analytical work that did not need computer access while equipment was packed away and outdoor activities not allowed. The team used part of the planned visit in November to review plans, as this was fortuitously timed to allow some analysis to feed into that. A project newsletter 4 planned for publication in October was delayed and amalgamated with the following one into a larger issue. (We should note that newsletter 3, published and circulated in July 2017, could have been split into several individual newsletters, as it had more articles than the previous two. However, articles had been particularly forthcoming from those involved in the various aspects of the project, so a decision was made to go with a large issue – inadvertently offsetting the later hurricane-caused delay in the next issue.) The starts of some new sites in the *Adopt a Home for Wildlife* initiative were delayed, partly because those planning to lead them were involved in community work in support of those who suffered damage to homes and other property. However, all these commenced, albeit slightly later than planned. Overall, the impact on the project was fairly low, with some activities delayed slightly and possibly achieving quantitatively slightly less (within the project period) than envisaged. Even this would be a proportionally very small loss, thanks particularly to extra work by project personnel in MNT and UKOTCF.

*That human-induced blockages do not disrupt: As finding ways to address these is a fundamental part of the project, major impacts are not envisaged.*

*Sufficient computing capability on Montserrat. Both the Montserrat Government Department of the Environment and the Montserrat National Trust have adequate facilities and trained personnel.* This is modified in that the chronic electrical supply failures have, at times, impeding work and damaged equipment. This was not anticipated because a DFID-supported replacement for electric-generation equipment was supposed to have been in place. However, this was seriously delayed and suffered other problems in completion. Attempts were made to work around this, but effective working time was inevitably lost.

*Qualified person recruited to local post. Although Montserrat has a small population, the skills and qualifications levels are high, so this should not be an issue.* Trust had in place an exceptionally well qualified volunteer whom it could already work with and so he was recruited for a fuller-time role as the PO, after advertisement.

*That further volcanic activity does not cause disruption: The volcano has moved into a period of low activity in recent years, such that some restrictions in sectors of the Exclusion-Zone are being reduced.*

It did not.

Local stakeholder participation is key, via a wide range of activities (workshops, consultations, etc.). The Government Department of Environment, the Montserrat National Trust, and other partners have an excellent record of participation in effective workshops and consultations. Unfortunately, the senior post at DoE was effectively vacant due to illness throughout the project and another post vacant. This limited the input to work (as opposed to necessary interactions) by DoE, but was largely covered by extra work by MNT and UKOTCF.

The model, as set out in the project proposal, has been followed. In practice, some scheduled meetings involving all partners proved impracticable for various reasons. These arise in part from the heavy overload and illnesses in Montserrat partners and from the very heavy work-loads and international travel schedules of the senior volunteers in the other partner organisations donating their time to the project (as well as other partners recruited to bring in other expertise). UKOTCF's experience readily overcame this by the use of separate physical or Skype/phone meetings focussing on particular aspects of the work – which have the additional benefit of making better use of time. The evaluation against plan was done through the completion of, or progress in (as appropriate), the main activities and outputs (see sections above). Information is shared by a variety of means (e.g. Dropbox, emails, Skype/phone conversations, physical meetings) as appropriate, with regard to the nature of the information and cost-effectiveness.

Some trialling of online project management tools, to assist remote working, was done, e.g. Trello. The efficacy of this is still under review. It is our view that the monitoring of project outputs and evaluation of these through the communication channels used throughout seemed to be appropriate for the size and duration of project.

## 5.2 Actions taken in response to annual report reviews

Darwin Plus, through its reviewers has expressed some doubts about the holistic nature of the project and its ambition to meet its goals. However, this approach was based on many years of experience of UKOTCF working in support of UKOT partners. It has the advantage of looking at matters from the needs expressed by local conservationists as to what they need for effective conservation, rather than centred on the agendas and priorities of UK-based conservation or research bodies. It also has practical and value-for-money benefits in terms of making best use of travel and subsistence expenditure. We would not pretend that this is easy, but it is an approach that we have much experience in using, and have demonstrated that it can be effective, as in the present case.

The issues raised in the review of the annual report were responded to, as requested, in the following half-year report, which was accepted. The review was shared with project partners and responses developed with them.

The way in which the project was designed allowed for some degree of enhancement in the approaches, as the early, exploratory stages clarify the issues and priorities with the wider pool of local stakeholders. One area which has seen refinement is the closer matching of the most appropriate aspects expertise of our planning/environment consultants to the priority needs identified more clearly with local practitioners; this is one of the reasons why modification of the log-frame was necessary.

The second main area consisted of exploration of the options for delivering the increase in local voluntary conservation capacity, addressing elements such as invasive species, restoration of native species, etc. The additional local volunteers identified allowed these aspects to be integrated into the *Adopt a Home for Wildlife* initiative, with even greater potential. This was perhaps not made clear in the first annual report and so we tried to address this later, in issues of the newsletter to emphasise the importance of this aspect of the project. A few other adjustments have already been mentioned earlier in this report.

The devaluation of the pound gave considerable challenges to the project, because nearly all costs are linked to the US\$. As Defra does not currently allow for these kind of extraordinary fluctuations, this was addressed by UKOTCF personnel donating extra resources, carrying out rebalancing between sub-heads, arranging more contributions in kind from other sources, and planning for small reductions in some activities.

## 6 Darwin Identity

All dissemination of the project activities/results has acknowledged the support of the Darwin Initiative. The @Darwin\_Defra tag has been used on social media, which has resulted in the team re-Tweeting it. UKOTCF has amassed over 1,000 followers, many from outside of the conservation community and so offers great exposure for Darwin Plus.

All copies of the project newsletter carry the logos of the Darwin Initiative and of project partners. This applies also to all main articles on the project in UKOTCF's *Forum News*, all project workshops,

illustrated talks on the project (whether in Montserrat, UK or elsewhere), and any other opportunities. The Darwin Initiative was mentioned in all talks and Montserrat ZJB radio broadcasts.

During the second year, a blog was featured on the Seedball website (see above) the article included all partner logos. It is a UK private business, with an ethical ethos. It has almost 40,000 followers on Twitter. This gave exposure to a UK audience of the work funded by UK Government through Darwin Plus.

A pull up poster which outlines the project and importance of invertebrates, given the interest after the June visit of MSU, was produced and is on display and will be permanently feature in MNT workshop room, displaying the Darwin logo. The Montserratian community utilises the meeting room for a variety of meetings on a wide range of topics and this offers long-term exposure for Darwin Plus.

This is in addition to the general publicity, and advice to potential applicants, that UKOTCF has provided *gratis* to the Darwin Initiative since the latter started, and which continues in its publications, web-site, meetings, advice to its network and in its conferences for conservation practitioners (held every three years, subject to funding), where the Darwin Initiative features heavily as the only UK Government dedicated fund for conservation work in the UKOTs.

UKOTCF is undertaking a major re-design of its website (now [www.ukotcf.org.uk](http://www.ukotcf.org.uk)). The Darwin project features in key projects and also in appeals to continue the work started by it, in efforts to make the best use of current online- fundraising potential.

## 7 Finance and administration

### 7.1 Project expenditure

Project spend (indicative) since last annual report	2017/18 Grant (£)	2017/18 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others				
<b>TOTAL</b>				

Staff employed (Name and position)	Cost (£)
Nicolas Tirard, Project Officer (P/T)	
Sarah Barnsley, Conservation Officer (P/T)	
Dr Nicola Weber, Conservation Officer (P/T)	
Dr Wylie Horn, Conservation & Information Officer (P/T)	
Sarah Rubin, Student Assistant (P/T)	
Catherine Wensink, Senior Conservation Officer (P/T)	
Dr Mike Pienkowski, Chairman	
<b>TOTAL</b>	

Consultancy – description of breakdown of costs	Other items – cost (£)
<b>TOTAL</b>	0

Capital items – description	Capital items – cost (£)
<b>TOTAL</b>	0

Other items – description	Other items – cost (£)
<b>TOTAL</b>	0

## 7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Donated time by or via UKOTCF	
Donated time by or via MNT	
Donated time by or via TEC	
Donated time by or via MSU	
Donated time by GoM	
Donated time by local participants, to establish <i>Adopt a Home for Wildlife</i> sites, the effective way of safeguarding native plants and controlling invasives	
Use of donated computer facilities to establish and host <i>Montserrat Virtual Museum of Natural History</i>	
Commercial satellite images, donated by DigitalGlobe	
Time donated by other specialists	
EU BEST grant secured to fund set-up and initiation of native plant nursery	
<b>TOTAL</b>	

Source of funding for additional work after project lifetime	Total per year (£)
Donated time by or via UKOTCF per year	
Donated time by or via MNT per year	
Donated time by or via MSU per year	
Donated time by local participants per year, to maintain <i>Adopt a Home for Wildlife</i> , the effective way of safeguarding native plants and controlling invasives.	
Use of donated computer facilities to host <i>Montserrat Virtual Museum of Natural History</i>	
<b>TOTAL per year</b>	

## 7.3 Value for Money

The project inevitably involved substantial travel and subsistence costs (as noted also, and supported, by Montserrat's Minister of Environment in his supporting letter). However, this was more than offset by the fact that most of the expertise needed to support the island was provided at no cost. Such travel costs were minimised by using electronic communications and training methods whenever possible. When it was necessary to travel, planning travel well in advance was a major economic saving and enabled the team to do more. For example, MSU was able to utilise long-term relationship on island for premises during their stay, which enabled additional researchers to join the trip at no additional cost to the project. This enabled an additional source of technical knowledge on the island's biological importance from a US expert on ecosystems to present to the community and generate enthusiasm for recognising the importance of the islands biodiversity as a whole.

Given the amount of additional support achieved throughout the project, we have estimated that the total extra investment, representing excellent value for money, from elsewhere than Darwin Plus to the project was about £405,521 during the project (245% of the Darwin Plus contribution), supplemented by an estimated £61,520 per year (37% of the 2-year Darwin Plus contribution) continuing.

**Annex 1** Project’s original (or most recently approved) logframe (if your project has a logframe), including indicators, means of verification and assumptions. N.B. Insert your full logframe. If your logframe has changed since your application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe. If your application’s logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact [Darwin-Projects@ltsi.co.uk](mailto:Darwin-Projects@ltsi.co.uk) if you have any questions regarding this.

**LOGICAL FRAMEWORK – REVISED JULY 2017**

Darwin Plus projects will be required to report against their progress towards their expected outputs and outcome if funded. This section sets out the expected outputs and outcome of your project, how you expect to measure progress against these and how we can verify this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p><b>Impact:</b> Ensure procedures are in place to minimise negative impacts on the natural environment due to pressures of population concentration, and start on strategies to facilitate the natural restoration of native forests and other habitats in the Exclusion Zone.</p> <p>(Max 30 words)</p>			
<p><b>Outcome:</b> Strategies for Island-wide ecological sustainability and the enhancement of endemic species-survival in place, taking into account the interaction of volcanism and human-activities, to include strategic vision and varied management approaches, and biological recording, in both open and Exclusion zones.</p> <p>(Max 30 words)</p>	<p>(Direct measurable biological results are impossible within the 2-year limit of current Darwin Plus projects. However, good indirect indicators are available:)</p> <p>0.1 Results of development proposals show that environmental sustainability is being taken into account.</p> <p>0.2 Human and supporting infrastructure improved.</p> <p>0.3 Strategic vision in place for resourcing and implementing an environmentally sustainable management plan for the Exclusion Zone, re-establishing natural forest and tackling invasive species.</p>	<p>0.1 See 1.1 – 1.3 below</p> <p>0.2 See 2.1 - 2.5 below</p> <p>0.3 See 3.4 below</p>	<p>As below</p>
<p><b>Outputs:</b></p> <p>1. System in official development to ensure that developments in the occupied zone take full account of maintaining the natural environment</p>	<p>1.1 Following consultations, clear recommendations set out on how to take environmental considerations into account in physical planning procedures, and on any further information needs for</p>	<p>1.1 Report of pro-bono environment/planning specialists.</p> <p>1.2 Report of pro-bono environment/planning specialists.</p> <p>1.3 Translation of recommendations</p>	<p>That severe hurricanes do not disrupt: Apart from very severe hurricanes (most recently in early 1990s), disruption tends to be short-term.</p> <p>That human-induced blockages do not</p>



	<p>this.</p> <p>1.2 Following consultations, clear recommendations set out on needs to reconcile the Conservation and Environmental Management Act and the Physical Planning Act, and on securing necessary resources.</p> <p>1.3 Recommendations converted into format suitable for officials to take action or to edit into papers to put before Cabinet, as appropriate.</p>	<p>into format for local officials to edit into Cabinet paper(s), as requested by Minister of Agriculture, Trade, Lands, Housing &amp; Environment.</p>	<p>disrupt, or that there is not sufficient capacity within Government to put into action: As finding ways to address these is a fundamental part of the project, major impacts are not envisaged.</p>
<p><b>2. Improved local capacity to address development and conservation issues, supported by evidence being available in biological databases</b></p>	<p>2.1 Locally accessible database available and training in its use developed.</p> <p>2.2 Data entry for Montserrat beetle information captured, digitised and held remotely and repatriation achieved.</p> <p>2.3 Local personnel trained in data-system, and using this.</p> <p>2.4 Information on current status of invasive plants in the open zone collated, and management and control strategy developed and initiated.</p> <p>2.5 Local post filled and operational.</p>	<p>2.1 The locally accessible database, and project reports.</p> <p>2.2 Database populated with invertebrate information (13,000 reports from 800 species), and project reports</p> <p>2.3 Project reports and those of local partners.</p> <p>2.4 Invasive plants status document and project reports</p> <p>2.5 Contract of employment, project reports and those of local partners.</p>	<p>Sufficient computing capability on Montserrat. Both the Montserrat Government Department of the Environment and the Montserrat National Trust have adequate facilities and trained personnel.</p> <p>Qualified person recruited to local post. Although Montserrat has a small population, the skills and qualifications levels are high, so this should not be an issue.</p>
<p><b>3. Strategic vision for the restoration and management of Montserrat's Exclusion Zone</b></p>	<p>3.1 Full local consultation system to input into widely agreed strategic vision for the use of the Exclusion Zone, emphasising restoration of natural ecosystems, developed.</p> <p>3.2 Information on the resources required for the plan development phase (e.g. financial, technical assistance,</p>	<p>3.1 Consultation and workshop reports.</p> <p>3.2 Workshop reports, the Vision itself and project reports.</p> <p>3.4 The Vision itself and project</p>	<p>That further volcanic activity does not cause disruption: The volcano has moved into a period of low activity in recent years, such that some restrictions in sectors of the Exclusion-Zone are being reduced. However, even increased volcanic activity would enable further assessment of the parameters.</p> <p>Local stakeholder participation is key, via a</p>

	<p>other human resources) available.</p> <p>3.3 Volunteer expert input to the project achieved.</p> <p>3.4 Integrated strategic vision for environmental restoration and management of key areas in the Exclusion Zone produced.</p>	<p>reports.</p> <p>3.4 The Vision itself and project reports.</p>	<p>wide range of activities (workshops, consultations, etc.) The Government Department of Environment, the Montserrat National Trust, and other partners have an excellent record of participation in effective workshops and consultations.</p>
<p>4. Project managed and delivered</p>	<p>4.1 Reports and articles on lessons learnt on UKOTCF and other websites and social media, <i>Forum News</i> articles, presentations at meetings and conferences.</p> <p>4.2 Management of all aspects of the project, including local and remote meetings.</p>	<p>4.1 The reports, articles and presentations delivered.</p> <p>4.2. Interim and final reports on the project.</p>	<p>The project will be successfully delivered. All partners in the project have an excellent record of delivering project objectives, and managing required resources effectively and efficiently.</p>
<p><b>Activities</b> (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>1.1 Consult stakeholders, combine with experience from elsewhere, and report with clear recommendations set out on how to take environmental considerations into account in physical planning procedures, and on any further information needs for this.</p> <p>1.2 Following consultations, combine with experience from elsewhere, and report with clear recommendations set out on needs to reconcile the Conservation and Environmental Management Act and the Physical Planning Act, and on securing necessary resources.</p> <p>1.3 Build on basic training delivered earlier to consult with Ministers and senior officials with a view to facilitating Montserrat Government implementing appropriate adjustments for effective incorporation of environmental considerations into physical planning procedures, so as to enhance prospects for conservation of threatened ecosystems and threatened and endemic species populations.</p> <p>2.1 Modify existing, tested biodiversity database-system for local use, but compatible with supporting wider systems, and adjust in the light of local feedback.</p> <p>2.2 Populate this database with initial content by repatriating of invertebrate (primarily beetle) data from US, UK and Canada to Montserrat (with continuing data-checking).</p> <p>2.3 Train local personnel, and support the establishment of local recording and data-recording systems.</p> <p>2.4 Increase local capability for conservation initiatives initially by developing an approach including removal of invasive plants and establishing a locally run system to promote and continue this.</p> <p>2.5 Provide modest increased local capacity to implement the above activities during the period of support by the project.</p> <p>3.1 Establish full local consultation system to input into an agreed strategic vision for the use of the Exclusion Zone, emphasising restoration of natural ecosystems</p>			

3.2 Scope the resources required to develop this system (e.g. financial, technical assistance, other human resources)

3.3 Engage largely volunteer expert input (to combine with local knowledge) on ecological, restoration and external resourcing of major projects.

3.4 Produce an integrated strategic vision for the environmental restoration and management of the Exclusion Zone, as a basis for project development, resourcing and implementation beyond the present project, this to include also: considering cost-effective methods for this, including field-work, remote-sensing (distant and/or close), monitoring, how to manage the existing abandoned farming elements, resources required etc

4.1 Wider dissemination of lessons of use to other UKOTs and elsewhere

4.2 Management of all aspects of the project, including local and remote meetings

## Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
<p><b>Impact:</b></p> <p>Ensure procedures are in place to minimise negative impacts on the natural environment due to pressures of population concentration, and start on strategies to facilitate the natural restoration of native forests and other habitats in the Exclusion Zone.</p>		<p>By empowering the Department of Environment and Physical Planning Unit, through working with technical experts to remove blockages and creating a more efficient system by which environment is integrated into planning, some way towards minimising negative impacts on natural environment has been, achieved. The impact of this has been seen at one natural site under development where the land-owner has been working with DoE (advised by MNT) to ensure minimal impact on biodiversity but opportunities for people to benefit from the ecosystem services the coastal area can provide.</p> <p>By establishment of mechanisms for community involvement in land management via <i>Adopt a Home for Wildlife</i> and the native plant nursery, the community of Montserrat now have a way in which to be involved directly in ensuring positive outcomes for biodiversity and increasing/maximising the area available to it.</p> <p>By having greater access to available biological data (starting with beetles) which are now known, via public lectures, radio and news items, to provide important ecosystem services for the local community, future decisions on sustainable management of natural resources can be based on scientific knowledge.</p> <p>The widely shared vision for the south reached by stakeholder engagement is a footprint for future work to manage an area rich in biodiversity but under threat from several invasive species, also representing an opportunity to contribute towards a sustainable economy (e.g. eco-tourism).</p>
<p><b>Outcome:</b> Strategies for Island-wide ecological sustainability and the enhancement of endemic species-survival in place, taking into account the interaction of volcanism and human-activities, to include strategic vision and varied management approaches, and biological</p>	<p>(Direct measurable biological results are impossible within the 2-year limit of current Darwin Plus projects. However, good indirect indicators are available:)</p> <p>0.1 Results of development proposals show that environmental sustainability is being taken into</p>	<p>The outcome of the project was achieved, despite many components, put together as an ambitious project with many partners.</p> <p>Indicator 0.1: A wider scope of environmental assessment is desirable than that within current physical planning legislation, and proposals in respect of areas of legislation requiring attention have been identified and advised by the project see Annex 7.</p>

<p>recording, in both open and Exclusion zones.</p>	<p>account.</p> <p>0.2 Human and supporting infrastructure improved.</p> <p>0.3 Strategic vision in place for resourcing and implementing an environmentally sustainable management plan for the Exclusion Zone, re-establishing natural forest and tackling invasive species.</p>	<p>Those aspects of recommendations, which do not require legislative measures have largely been implemented and there is some evidence that sustainability has been taken into account in plans. These include, for example, pre-screening by DoE for proposed developments. This results from the Treweek &amp; Hruza report, individual interviews and informal discussions with the key persons by Treweek Environmental Consultants, and follow-up by UKOTCF personnel. (As the interviews were conducted on a confidential basis, to encourage frankness, the interviews themselves, as opposed to their analysis in Annex 7, cannot be appended.)</p> <p>With regard to those aspects that require Cabinet decisions and/or legislation, UKOTCF has discussed with Government Ministers who have confirmed their support, and asked UKOTCF to help their officials to prepare the necessary papers. This is in hand, but the papers cannot be appended to this report because they constitute advice from officials to their ministers, which are routinely confidential in British-based systems. However, the situation is confirmed in a letter from the Director of Land Management, copied also to the former and present Ministers, the Director of Environment (Annex 17).</p> <p>Indicator 0.2  - Provision of a Project Officer at the Montserrat National Trust, and UKOTCF working with him, have resulted in the <i>Adopt a Home for Wildlife</i> scheme, which is proving both an effective way to maintain native plants (and some animals) against invasive and other pressures, and a means of strengthening local “ownership” of the natural environment (see newsletters 1-6, Annexes 10-15).</p> <p>This provision has also increased general capacity at the Trust, which has, in turn, enabled further support for this project to be secured, to provide both a native plant nursery to complement <i>Adopt a Home for Wildlife</i> and provide more time for the Project Officer to deploy, resulting in several supplementary projects which have also lead to the proposed outcome being achieved (see newsletters 3, 5, 6 – Annexes 12, 14, 15).</p> <p>By shortly after the end of the first year of <i>Adopt a Home for Wildlife</i>, about</p>
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		<p>75 acres (30 ha) were under voluntary conservation management, including areas cleared and, where appropriate, replaced with native vegetation. Some of these are areas of globally rare tropical dry habitat.</p> <p>So far, 11 teams, including about 100 individuals as a body of volunteers, have worked on this. Examples of achievements of the initiative include: land-owner Tim Orton putting his 4 acres of rare and threatened tropical dry-forest habitat near Garibaldi Hill, south of the Belham River, under management guidance of the initiative, to work with MNT to remove neem and other invasive plants and then, in his words, “do as little as possible to the land so that it can develop as naturally as possible.” Collections of invertebrates here will be analysed by MSU team, as this is a habitat on Montserrat for which there has been limited, if any, previous survey. Under the guidance of MNT officers, Dwayne Hixon has removed dense stands of invasive Casuarina from the land he manages at Old Road Bay. There is a marked improvement of the area in terms of its appearance (see SOS Nature of Montserrat 4, page 9) and this site also represents a shift in local thinking, from bulldozing an area to start from bare land and bringing in non-native plants for landscaping, to removing carefully the vegetation which has a negative impact on biodiversity, but keeping those that perform an important function, e.g. ‘sea-grape’ for coastal defence. The cost of careful removal and replacement of invasive plants was estimated by one ‘adopter’ (Mr Orton) as equivalent to bulldozing but gave more local employment as well as retention of more of the native flora and fauna. (Of course, the benefits of the careful method then continue to make this method cheaper, as fertilizer and irrigation costs will be less). It gives an opportunity to promote this method with local landscaping businesses. At the Old Road Bay site, the project interacted with the developer to recreate coastal ponds, recently lost to Montserrat due to volcanic flow filling some ponds and inappropriate development filling others. As soon as these ponds became available, they were used by migrant shorebirds. This change in approach is showing immediate results for biodiversity.</p> <p>Satellite images, with ground-truthing, secured and analysed, as well as training provided. Amongst many other potential uses, this has already helped in identifying further priority and feasible areas for removal of invasive</p>
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		<p>plants (see newsletters 3-6 in Annexes 12-15).</p> <p>Initial improvements made to integrating environmental aspects into physical planning, with recommendations made also for those further ones which require Cabinet decisions and/or legislation (Annex 7 and above).</p> <p>Recommendations made for working towards a sustainable funding mechanism for conservation, through the Montserrat National Trust (see Section 4 below).</p> <p>Database and portal system designed and implemented, as a permanent product for Montserrat decision-makers, planners, conservations, educators, students and anyone else, without significant on-going costs for Montserrat; and the first module, for beetles, populated (see newsletters 3-6, Annexes 12-15; and link]).</p> <p>Incorporation of some aspects into various levels of education, to help embed these approaches in the long-term, as well as increase local capacity.</p> <p>Indicator 0.3:  A widely agreed vision, with priority aspects, was achieved over a series of 4 workshops, with the participation of many stakeholders and ministerial endorsement and support. The summary Vision Statement is in Annex 1 of final report (Annex 9). It recognises the immediate concerns of stakeholders, looks at challenges, and brings together views on how to ensure that this area is managed in the future, subject to securing resources (for which this agreed vision is a pre-requisite) and to access issues being adequately addressed. A clear priority was for a scoping review of the practicalities of dealing with the feral animals (for the whole island) in this challenging situation. Partners were identified and are willing to be brought in for this. Progress here would allow effective conservation, as well as other opportunities e.g. tourism, for which there is great local interest.</p>
<p><b>Output 1.</b> System in official development to ensure that developments in the occupied zone take full account of maintaining the</p>	<p>1.1 Following consultations, clear recommendations set out on how to take environmental considerations into account in physical planning</p>	<p>Output achieved as detailed below for each output 1.1-1.3</p> <p>As evidenced in Annex 7, this output has been met as fully as is possible in terms of the advice provided by technical experts to the Government of</p>

<p>natural environment</p>	<p>procedures, and on any further information needs for this.</p> <p>1.2 Following consultations, clear recommendations set out on needs to reconcile the Conservation and Environmental Management Act and the Physical Planning Act, and on securing necessary resources.</p> <p>1.3 Recommendations converted into format suitable for officials to take action or to edit into papers to put before Cabinet, as appropriate.</p>	<p>Montserrat (GoM).</p> <p>Individual and small-group discussions with key stakeholders (1.1) were conducted by visiting consultants. This was found to be the most effective way to gather information and answer questions, and an initial feedback session was held with them and a variety of other personnel. As agreed, the log-frame was amended (July 2017) to reflect accurately the way in which the project has adapted to needs of GoM in order to achieve the project goal, under output 1. This was so as to ensure that a solid environmental assessment platform would be in place to support effective consideration of biodiversity and ecosystem services in the planning system.</p> <p>Simple approaches, considered to be achievable with existing resources, were identified and advice was given on implementation. These included: example terms of reference for a development project, with an annotated section on biodiversity, a draft checklist for considering biodiversity issues and impacts in environmental assessment, and the Conservation and Environmental Management Act (CEMA) schedule 1 activities. Identified recommendations and resources needed (1.2) were included in the report appended (Annex 7).</p> <p>Advice and draft wording have been provided for the preparation of formal Cabinet papers (1.3) necessary to ensure such change (see Annex 17). It now lies with senior officials in Montserrat to drive this forward to create the changes within the local system. They are aware that UKOTCF personnel remain on hand to advise/ input as required.</p>
<p>Activity 1.1. Consult stakeholders, combine with experience from elsewhere, and report with clear recommendations set out on how to take environmental considerations into account in physical planning procedures, and on any further information needs for this.</p>		
<p>Activity 1.2. Following consultations, combine with experience from elsewhere, and report with clear recommendations set out on needs to reconcile the Conservation and Environmental Management Act and the Physical Planning Act, and on securing necessary resources.</p>		
<p>Activity 1.3. Build on basic training delivered earlier to consult with Ministers and senior officials with a view to facilitating Montserrat Government implementing appropriate adjustments for effective incorporation of environmental considerations into physical planning procedures, so as to enhance prospects for conservation of threatened ecosystems and threatened and endemic species populations.</p>		
<p><b>Output 2.</b> Improved local capacity to address development and conservation issues, supported by evidence being available in biological databases</p>	<p>2.1 Locally accessible database available and training in its use developed.</p> <p>2.2 Data entry for Montserrat beetle information captured, digitised and held remotely and repatriation</p>	<p>Output achieved as detailed below for each output 2.1-2.5</p> <p>Creation of the Montserrat Virtual Natural History Museum portal <a href="http://mtent.org/mvmnh/">http://mtent.org/mvmnh/</a> (2.1).</p> <p>Data capture, digitisation and entry was completed by two students, (including one from the Caribbean) recruited by Montana State University, for</p>



	<p>achieved.</p> <p>2.3 Local personnel trained in data-system, and using this.</p> <p>2.4 Information on current status of invasive plants in the open zone collated, and management and control strategy developed and initiated.</p> <p>2.5 Local post filled and operational.</p>	<p>a total of 14,656 specimen records from 800 species of 13 orders, as part of the West Indian Beetle Fauna collection for Montserrat (2.2). Sharing of information about the database, which could be extended to other UKOTs has been done via social media and the Wider Caribbean Working Group of UKOTCF.</p> <p>A workshop held to inform potential users of the database and gain feedback in June 2017 (2.3). Participants in the workshop held at the MNT facility included 20 potential core-users, e.g. government leaders in data-systems for statistics, GIS, environment &amp; planning databases, NGO personnel, a high school science teacher, and undergraduate-level students. Suggestions included, amongst others, a simple scientific key to help identify beetles on-island to the non-technical experts. A report on feedback produced by UKOTCF and given to MSU to inform design/development of portal. The enthusiasm for information at a local scale generated via the workshop (and public lecture attended by over 50 persons including the Governor) provides a basis on which to engaged the community in conservation efforts and a greater appreciation for how important invertebrates are to island.</p> <p>Report produced on invasive species Annex 20). See accounts of the ‘<i>Adopt a Home for Wildlife</i>’ initiative being led by MNT, in summary, 75 acres (30 ha) actively managed for conservation by residents in the initiative set up by the project (2.4). Removal of invasive species and replacement with native plants –supplied free to Adopters – is the main success here. Already, 23 native species are being cultivated for use, despite seed loss due to the hurricanes. To give an indication of scale, the initiative is on course to provide about 1000 plants (including 100 in the first batch of native palms) during summer 2018, building up to 3000 plants in November.</p> <p>Project Officer, Nicolas Tirard recruited and employed by MNT for a period of nearly 2 years (2.5). Through additional EU grant (BEST fund) obtained as a result of this project, this was able to become full-time post during the project.</p>
Activity 2.1. Modify existing, tested biodiversity database-system for local use, but compatible with supporting wider systems, and adjust in the light of local feedback.		
Activity 2.2. Populate this database with initial content by repatriating of invertebrate (primarily beetle) data from US, UK and Canada to Montserrat (with continuing data-checking).		
Activity 2.3. Train local personnel, and support the establishment of local recording and data-recording systems.		
Activity 2.4. Increase local capability for conservation initiatives initially by developing an approach including removal of invasive plants and establishing a locally run system to promote and continue this.		
Activity 2.5. Provide modest increased local capacity to implement the above activities during the period of support by the project.		
<b>Output 3.</b> Strategic vision for the restoration and management of Montserrat’s Exclusion Zone	<p>3.1 Full local consultation system to input into widely agreed strategic vision for the use of the Exclusion Zone, emphasising restoration of</p>	<p>Output achieved as detailed below for each output 3.1-3.4</p> <p>A cross-sectoral consultation system was established (3.1), with Ministerial support, and a series of 4 workshops on the future of the south were held,</p>

	<p>natural ecosystems, developed.</p> <p>3.2 Information on the resources required for the plan development phase (e.g. financial, technical assistance, other human resources) available.</p> <p>3.3 Volunteer expert input to the project achieved.</p> <p>3.4 Integrated strategic vision for environmental restoration and management of key areas in the Exclusion Zone produced.</p>	<p>with wide participation (Annex 8).</p> <p>Reports produced including on resources required – see Annex 9 (3.2). It rapidly became apparent, after the first workshop that a slightly less detailed vision, with agreement on priorities, would achieve wide agreement. This was potentially much more useful as a tool for future seeking of resources for implementation of actions and generally followed the wishes of stakeholders. This was achieved and represents a major change and step forward. Whilst this, in itself, is not enough to make sure that the issue will be addressed in the future, without this, there would be virtually no chance of securing both resources and local agreement to deploy them.</p> <p>Volunteer input was secured to contribute to facilitation and reporting of workshops, ecological and restoration aspects, and some GIS analysis (3.3). The level of volunteer time is given in ‘matching- resources’ in section 7.2 above equates to £during the lifetime of the project and £after it.</p>
<p>Activity 3.1. Establish full local consultation system to input into an agreed strategic vision for the use of the Exclusion Zone, emphasising restoration of natural ecosystems.</p>		<p>Reports of all four workshops, leading to the shared vision, were circulated to all stakeholders, welcoming correction. Messages of note, but no corrections, were received, and the records were confirmed. The vision can be found in Annex 1, section 5 of the final workshop report (Annex 9 to this document).</p>
<p>Activity 3.2. Scope the resources required to develop this system (e.g. financial, technical assistance, other human resources).</p>		<p>(3.4)</p>
<p>Activity 3.3. Engage largely volunteer expert input (to combine with local knowledge) on ecological, restoration and external resourcing of major projects.</p>		
<p>Activity 3.4. Produce an integrated strategic vision for the environmental restoration and management of the Exclusion Zone, as a basis for project development, resourcing and implementation beyond the present project, this to include also: considering cost-effective methods for this, including field-work, remote-sensing (distant and/or close), monitoring, how to manage the existing abandoned farming elements, resources required etc.</p>		
<p><b>Output 4.</b> Project managed and delivered</p>	<p>4.1 Reports and articles on lessons learnt on UKOTCF and other websites and social media, <i>Forum News</i> articles, presentations at meetings and conferences.</p>	<p>Output achieved as detailed below for each output 4.1-4.2</p> <p>A list of articles/reports/outreach (4.1) is given on pages 12-13 above.</p> <p>Effective management was achieved (4.2), despite some long-term national infrastructure problems causing repeated power failures and communications</p>

	4.2 Management of all aspects of the project, including local and remote meetings.	failures in Montserrat, crucial to project meetings via remote facilities (e.g. Skype), throughout much of the project, and serious impacts of hurricanes in September 2017. An awareness of the impact of the hurricane season is well established in all project partners and so was anticipated (in assumptions).
Activity 4.1. Wider dissemination of lessons of use to other UKOTs and elsewhere.		This was dealt with by flexible working conditions, which allowed officers to work intensively during favourable conditions and less intensively during less favourable conditions.
Activity 4.2. Management of all aspects of the project, including local and remote meetings.		<p>Overall, the planned 4 physical project team meetings were held plus one additional one, and frequent additional communications by Skype (or other means during hurricane-caused internet failings) throughout, averaging between weekly and monthly between UKOTCF (including project leader and others) and MNT (local lead, including the project officer), depending on needs and the nature of work at the time.</p> <p>Due to the effective devaluation of the pound sterling during the project, the programme has been adjusted to cope with the fact that the value of the grant was reduced by about 15%-20%, but this was managed in accordance with advice received from Defra.</p>

## Annex 3 Standard Measures

We have provided information here despite reservations, in that there is no section addressing Conservation Measures, which is the main purpose of Darwin+, all Standard Measures relating instead to non-core features.

Code	Description	Totals (plus additional detail as required)
<b>Training Measures</b>		
1	Number of (i) students from the UKOTs; and (ii) other students to receive training (including PhD, masters and other training and receiving a qualification or certificate)	(i) 0 (ii) 1
2	Number of (i) people in UKOTs; and (ii) other people receiving other forms of long-term (>1yr) training not leading to formal qualification	(i) 5 (ii) 2
3a	Number of (i) people in UKOTs; and (ii) other people receiving other forms of short-term education/training (i.e. not categories 1-5 above)	(i) 490 (ii) 100
3b	Number of training weeks (i) in UKOTs; (ii) outside UKOTs not leading to formal qualification	(i) 16 (ii) 0
4	Number of types of training materials produced. Were these materials made available for use by UKOTs?	3
5	Number of UKOT citizens who have increased capacity to manage natural resources as a result of the project	490
<b>Research Measures</b>		
9	Number of species/habitat management plans/strategies (or action plans) produced for/by Governments, public authorities or other implementing agencies in the UKOTs	1 agreed vision document 1 set of drafts for Cabinet papers
10	Number of formal documents produced to assist work in UKOTs related to species identification, classification and recording.	2
11a	Number of papers published or accepted for publication in peer reviewed journals written by (i) UKOT authors; and (ii) other authors	(i) 0 (ii) 2
11b	Number of papers published or accepted for publication elsewhere written by (i) UKOT authors; and (ii) other authors	0
12b	Number of computer-based databases enhanced (containing species/genetic information). Were these databases made available for use by UKOTs?	2, Yes
13a	Number of species reference collections established. Were these collections handed	1 (for all beetle species recorded so far); Yes, in digital form

Code	Description	Totals (plus additional detail as required)
	over to UKOTs?	
13b	Number of species reference collections enhanced. Were these collections handed over to UKOTs?	4 taxa (beetles, long-legged flies, plants, reptiles). Yes, except UKOT authority requested they be sent elsewhere for specialist identification.
<b>Dissemination Measures</b>		
14a	Number of conferences/seminars/workshops/stakeholder meetings organised to present/disseminate findings from UKOT's Darwin project work	8 multi-participant seminars/workshops, plus numerous one-to-one consultations.
14b	Number of conferences/seminars/workshops/stakeholder meetings attended at which findings from the Darwin Plus project work will be presented/ disseminated	6 so far
<b>Physical Measures</b>		
20	Estimated value (£s) of physical assets handed over to UKOT(s)	Not costable
21	Number of permanent educational/training/research facilities or organisation established in UKOTs	2 (Montserrat Virtual Museum of Natural History; New greenhouse (from outside funds leveraged by the project))
22	Number of permanent field plots established in UKOTs	11
23	Value of resources raised from other sources (e.g., in addition to Darwin funding) for project work	£

## Annex 4 Publications

Mark (\*) all publications and other material that you have included with this report.

Type *	Detail (title, author, year)	Nationality of lead author <i>(Note that Montserratians, like other UKOT personnel are British)</i>	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. weblink, contact address, annex etc)
Journal	Brooks & Cumming (2018) New species of <i>Chimerothalassius</i> Shamshev & Grootaert from the West Indies & Costa Rica	Canadian	Canadian	Male	Zootaxa (Magnolia Press)	<a href="https://biotaxa.org/Zootaxa/article/view/zootaxa.4387.3.6">https://biotaxa.org/Zootaxa/article/view/zootaxa.4387.3.6</a>
Journal	J.B. Runyon & R.S. Capellari (2018) Palpi aplenty: new species in the <i>Chrysotus longipalpus</i> species group (Diptera: Dolichopodidae)	United States	United States	Male	Zootaxa 4399(4): 579-585 (Magnolia Press)	<a href="http://zoobank.org/urn:1sid:zoobank.org:pub:383F80BF-CD7A-4A7E-AE24-C58353217098">http://zoobank.org/urn:1sid:zoobank.org:pub:383F80BF-CD7A-4A7E-AE24-C58353217098</a>
Document*	Vision for the South of Montserrat, UKOTCF, 2017	British	British	Joint authorship – male and female	Online document	<a href="http://www.ukotcf.org.uk">www.ukotcf.org.uk</a>

Document*	Treweek Environmental Consultants: Consultant Report – Jo Treweek, Jennifer Hruza, Montserrat, 29 November – 5 December 2016, UKOTCF Darwin Plus Programme, Planning & Environmental Management	British	British	Female	Online document	<a href="http://www.ukotcf.org.uk">www.ukotcf.org.uk</a>
Newsletters x 6*	SOS <i>Nature of Montserrat</i> 1-6 *	British	British	Joint authorship – male and female	Online document	<a href="https://www.ukotcf.org.uk/news/project-newsletter-1">https://www.ukotcf.org.uk/news/project-newsletter-1</a> Plus summaries of these in UKOTCF Wider Caribbean Working Group newsletters ( <a href="https://www.ukotcf.org.uk/news/wcwg-newsletter-1">https://www.ukotcf.org.uk/news/wcwg-newsletter-1</a> ) and Forum News ( <a href="https://www.ukotcf.org.uk/news/forum-newsvers2">https://www.ukotcf.org.uk/news/forum-newsvers2</a> )
Broadcast (Radio ZJB) x 6	“The Culture Show”, Rose Willock x 5  Plus extended news report with interviews at start of project	British	British	Interviewer – female. Interviewees – male and female	Broadcast island-wide on Montserrat (with the news item syndicated through the Eastern Caribbean) & available online	<a href="https://montserratradioecho.wordpress.com/">https://montserratradioecho.wordpress.com/</a>
Seedball blog	Introducing the 'bottle bee' of Montserrat	British	British	Female	Online blog published by Seedball.	<a href="https://www.seedball.co.uk/blog-article/introducing-the-bottle-bee-of-montserrat">https://www.seedball.co.uk/blog-article/introducing-the-bottle-bee-of-montserrat</a>

## Annex 5 Darwin Contacts

<b>Ref No</b>	DPLUS049
<b>Project Title</b>	Maximising long-term survival prospects of Montserrat's endemic species and ecosystem-services
<b>Project Leader Details</b>	
Name	Dr Mike Pienkowski
Role within Darwin Project	Overall project coordination; lead on facilitating agreement across stakeholders for a vision for the (access-restricted) south of Montserrat
Address	
Phone	
Fax/Skype	
Email	
<b>Partner 1</b>	
Name	Mr Nicolas Tirard
Organisation	Montserrat National Trust
Role within Darwin Project	Project Officer; local organisation; lead on local participation, especially the <i>Adopt a Home for Wildlife</i> initiative
Address	
Fax/Skype	
Email	
<b>Partner 2</b>	
Name	Dr Michael A. Ivie
Organisation	Montana State University
Role within Darwin Project	Lead on invertebrate studies and on establishing the access to data via setting-up what has become Montserrat Virtual Museum of Natural History
Address	
Fax/Skype	
Email	
<b>Partner 3</b>	
Name	Dr Jo Treweek
Organisation	Treweek Environmental Consultants
Role within Darwin Project	Lead on integration of environmental aspects into physical planning
Address	
Fax/Skype	
Email	



<b>Partner 4</b>	
Name	Mr Gerard Gray, then Director of Environment, retired on health grounds early in the project and a replacement, Ms Ernestine Corbett, was not appointed until very shortly before the end of the project, and has been briefed by the Project Team, especially on the aspects which need further action. The project has, however, benefitted from the personal engagement of the Ministers of Agriculture, Trade, Land, Housing & Environment, both former, Hon. Claude Hogan MLA, and present, Hon. David Osborne MLA.
Organisation	Montserrat Department of Environment (and Dept of Physical Planning, both within the Ministry of Agriculture, Trade, Land, Housing & Environment
Role within Darwin Project	Support from Government; carrying forward aspects related to legislation and policy
Address	
Fax/Skype	
Email	

## Annex 6 Supplementary material (optional but encouraged as evidence of project achievement)

## Annex 7 Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	Yes
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	