

DARWIN INITIATIVE FOR THE SURVIVAL OF SPECIES
FINAL REPORT
INTEGRATING NATIONAL PARKS, EDUCATION AND COMMUNITY
DEVELOPMENT (BRITISH VIRGIN ISLANDS)

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1. Darwin Project Information

Project Title	Integrating National Parks, Education and Community Development
Country	British Virgin Islands
Contractor	British Virgin Islands National Parks Trust
Project Reference No.	162/7/163
Grant Value	£ 116,550
Starting/Finishing dates	April 1998/ November 2001

2. Project Background/Rationale

The British Virgin Islands National Parks Trust (BVINPT) was established in July 1961 by the Government of the British Virgin Islands, with a mission 'To preserve and manage designated natural and cultural areas in order to improve the quality of life in the British Virgin Islands.' It is a Statutory Body managing 19 National Parks as of 2001 (18 terrestrial and one marine). It also manages a Coral Reef scheme (the Marine Conservation Programme), two species recovery programmes and an educational programme, among other recurrent programmes. Fauna and Flora International (FFI) were already collaborating with BVINPT on the conservation of the critically endangered Anegada rock iguana (*Cylcura pinguis*). Both parties had also identified the need for knowledge and understanding of the vegetation and habitat requirements for the rock iguana and had approached RBG Kew in this respect. RBG Kew and FFI were already collaborating on conservation projects covered by an institutional memorandum of understanding (MOU). All three agencies are collaborating members of the UK Overseas Territories Conservation Forum (UKOTCF).

A workshop was held in BVI during August 1997 between representatives of the BVINPT, FFI and RBG Kew. The workshop was based on the Parks and Protected Areas Systems Plan developed for the BVI (BVINPT & Eastern Caribbean Natural Area Management Program, 1987) and evaluated the difficulties experienced by the BVINPT in implementing this Systems Plan. The workshop identified fundamental needs in training, public education and research. The British Virgin Islands as an UK Overseas Territory is included in the UK ratification of the Convention on Biological Diversity (CBD). However, the BVI felt unable to meet the obligations of the CBD because of a lack of basic biodiversity inventory data and funding for field activities and training. Lack of information was hampering the ability of the BVINPT to prioritize species conservation or undertake a gap analysis to identify additional areas of the Territory in need of protection. As conceived, the Darwin project would directly support the planned Biodiversity Action Plan and help meet BVI's implementation of the CBD. Key areas addressed were: **Article 6** - Development of a Biodiversity Action Plan; **Article 7** - Identification of components of biodiversity important for conservation and sustainable use; **Article 8** - Monitoring the

components of biodiversity; **Article 8d** - Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings; **Article 12** - Research and Training; and, **Article 13** - Public Education and Awareness. BVINPT director and staff guided these discussions and the Darwin project as conceived responded directly to the BVINPT's priorities and because of their statutory responsibilities also represented the Territories biodiversity priorities.

The BVINPT chose two main sites where the training and biodiversity data gathering would be undertaken. Gorda Peak National Park (GPNP) on the island of Virgin Gorda was declared a National Park in 1974 when Lawrence S. Rockefeller donated 265 acres of undisturbed (secondary) dry Caribbean forest to BVINPT. The 1071ha Western Salt Ponds on the island of Anegada is the only Ramsar site in the BVI and a site that the BVINPT would like to designate as a National Park. Very little information existed about the biodiversity of either of these two sites at the time of project design. Consequently these two sites were thought to provide the ideal opportunity for training, data collection and management plan development in an existing and in a proposed protected area. It is hoped that once capacity was built in these key skills during the lifetime of the Darwin project the trained staff would continue this work in other National Parks managed by BVINPT.

3. Project Summary

Project Summary

The overall aim of the project was to assist the British Virgin Islands in meeting its obligations under the Convention on Biological Diversity. The specific objectives were to:

- ξ Document the key components of the plant and animal diversity within a national park and a proposed protected area in the British Virgin Islands.
- ξ Develop capacity, through on-site training, of BVINPT, Conservation and Fisheries and other relevant staff to carry out biodiversity inventory and monitoring in BVI.
- ξ Further develop the protected areas management planning expertise within NPT.
- ξ Enhance the role of National Parks in the British Virgin Islands as a national education resource through improved links between the BVINPT, and national and community-based education groups.
- ξ Improve the socio-economic importance of National Parks in the British Virgin Islands by building a mutually advantageous collaboration with local community groups and the tourism sector.

The project was conceived to help with implementation of the CBD and primarily addressed Articles 6, 7, 8, 9 and 12, as well as Articles 9 and 17.

The operational plan of the project were largely adhered to and the major objectives of the project achieved. However, there were some significant changes during the course of the project, all of which were approved by the Darwin Initiative. The overall duration of the project was extended with a new agreed completion date of November

2002. During the first year of the project there was a good balance achieved between faunal and floral fieldwork and documentation of these elements of the biodiversity. However, after year one there was a shift in emphasis towards the documentation of the floral diversity within the two project sites. This was due largely to unfortunate illness and unavailability of the faunal specialist. Consequently, no faunal inventory or monitoring was undertaken in Anegada and only a partial survey completed in Gorda Peak National Park. At the same time the increase in floral activity meant that much more was achieved than estimated in the original application. There was reduced activity in the environmental education work due to lack of the matching funding hoped for. The other key areas: management planning for the two sites, re-development of the botanic garden, development of recovery planning skills, production of recovery plans, management planning for tourists in protected areas and developing public awareness were all achieved to plan. All of the activities held in BVI were conducted in the form of workshops and so directly addressed the capacity building needs of the Territory. Sixteen workshops were held over the three and a half years of the project. Fifty-three participants from seven government departments and related institutions attended at least one workshop. These individuals gained a lot from their participation in one or more workshops and the key Government departments also gained collective benefit. The project, the first to be managed in an UK Overseas Territory, was well publicised in BVI and exceeded most of the dissemination targets.

4. Scientific, Training and Technical Assessment

Although the project has produced important scientific data, its main focus was in training and capacity building. These were centered on a series of discrete workshops that were organized in conjunction with the project partners. Consequently this section will focus primarily on how these workshops were organized and conducted, including the main methodologies adopted.

The primary target audience for the workshops was the staff of the BVI National Parks Trust together with staff from Government Ministries/Agencies with a responsibility for any aspect of biodiversity activity. These principally comprised Conservation and Fisheries Department, Town and Country Planning Department, Agriculture Department and the Tourist Board. Members and Trustees of the Botanic Society participated in some of the workshops, notably those with a direct link with the J. R. O'Neal Botanic Garden. The Botanic Society was the original management authority for the botanic garden, which is now under the management of the BVINPT and is managed as part of the national parks system. The Botanic Society was dissolved in December 2001. BVINPT staff were released for workshop participation as time and their workloads allowed, but the scheduling of workshops was designed to try and allow maximum participation by NPT staff. The other Agencies were invited to participate in each of the workshops and sent the most appropriate staff that would gain maximum benefit from the training opportunity.

Individual specialists from the UK partners who were running the workshop designed the content of each of the workshops in collaboration with the BVINPT senior staff.

Workshops comprised a combination of information dissemination (lectures/seminars), discussion forums and fieldwork. The balance between the various activities was determined by the nature of the workshop topic. In general individual workshops were scheduled to run for one week, but occasionally related topics were run together over two weeks. For example it made good academic and practical sense to run survey and monitoring, and data analysis workshops together so that the techniques were taught, field data were gathered using those particular techniques and then those data were analysed in a workshop/training forum.

There was no formal assessment of participants at the end of workshop sessions and no formal accreditation was sought for the workshops. This was felt by all parties to be unnecessary. However, the training methodologies adopted ensured that there was reinforcement of materials and that learning outcomes were informally assessed during the course of the workshop. For example, informal plant and animal identification tests were held during field exercises. At the end of the main training workshops participants had the opportunity of evaluating workshops both by verbal and written feedback.

The schedule of workshops varied slightly to that outlined in the original proposal, mainly due to availability of workshop facilitators and some co-funding problems. The Darwin Initiative was kept fully informed of changes to scheduling via specific correspondence and via the half-yearly and annual reporting mechanism. The Darwin Initiative approved all changes. The detailed scheduling of workshops, their content and main objectives, together with brief details on numbers of participants follows. Summary reports were produced for each of the workshops by the facilitators. Some reports were the product of more than one workshop eg workshops 1, 2, 3 and 6 resulted in the major dataset for the plants of GPNP, incorporating all the elements of preceding workshops. Numbers of people reported at each of the workshops represents those people who attended the majority of the workshop. In some cases individuals had to miss small elements due to work commitments. In other cases some individuals attended on occasional days, also because of other commitments, but in these cases their attendance is not recorded in the statistics.

Copies of all the reports produced during the project have been bound into a single document and submitted with this report as supplementary information. What follows is a brief summary of each of the workshops conducted during the Darwin project.

Workshop 1 (Nov 1998) – Identification of the BVI Flora.

Facilitator: Dr Pedro Acevedo

Objectives: to develop plant species identification skills and build familiarity with the major groups of plants found in BVI.

Participation: 14 people for 5 days

Main Output: The initial development of plant identification skills in BVI

Workshops 2 & 3 (Nov/Dec 1998) – Survey and Inventory of Gorda Peak National Park (GPNP) and data analysis.

Facilitators: Drs Colin Clubbe, Mike Gillman, Clare Hankamer, Jenny Daltry.

Objectives: to develop skills in field survey techniques applicable to 3 taxa: plants, reptiles and butterflies, including the establishment of permanent plots to facilitate future monitoring of the forest flora; to develop skills in biodiversity data analysis.

Participation: 14 people for 10 days

Main Outputs: Initial plant species list for GPNP and preliminary analysis of key trends. Initial species lists of key amphibians, reptiles and butterflies. Development of skills in identification, monitoring and data analysis. 9 permanent plots established.

Workshop 4 (Jan 1999) – Management Planning for Gorda Peak National Park (GPNP)

Facilitators: Mike Appleton, Mark Day.

Objective: to develop skills in protected area management and planning and to start the production of a draft management plan for GPNP.

Participation: 13 people for 5 days

Main Outputs: Draft management plan for GPNP. Development of skills in management planning.

Workshop 5 (Jan 1999) – Tourism, Recreation and Interpretation.

Facilitators: Mike Appleton, Mark Day.

Objective: to familiarize participants with the principles and concepts of ecotourism; to review the major types of interpretation and how best to use them.

Participation: 13 people for 5 days

Main Outputs: Participants were exposed to the concepts involved in the development and production of signage and interpretive materials for parks and protected areas.

Workshops 6 & 7 (Nov 1999) – Advanced Species Identification and Training in Survey Techniques.

Facilitators: Drs Colin Clubbe, Mike Gillman, Pedro Acevedo, Clare Hankamer.

Objectives: Build plant identification skills, develop survey skills and establish second set of permanent plots at Gorda Peak National Park.

Participation: 13 people for 5 days. Workshop disrupted due to Hurricane Lenny (5 days lost).

Main Outputs: 10 permanent plots established (19 in total for GPNP). Plant identification and monitoring skills enhanced.

Workshop 8 & 9 (April 2000) – Plant Identification and Survey Skills for Anegada.

Facilitators: Drs Colin Clubbe, Mike Gillman, Pedro Acevedo.

Objectives: Further develop plant identification skills and plant survey skills; collect inventory and species distribution data.

Participation: 11 people for 10 days

Main Outputs: Initial plant species list for Anegada Ramsar site and further development of field monitoring and plant identification skills.

Workshop 10 (Nov 2000) – Advanced Plant Identification and Survey Skills for Anegada.

Facilitators: Drs Colin Clubbe, Mike Gillman, Pedro Acevedo.

Objectives: Further develop plant identification skills and plant survey skills; collect inventory and distribution data.

Participation: 14 people for 6 days

Main Outputs: Plant species list for Anegada plus conservation assessments. Enhancement of skills in identification and monitoring. 27 permanent transects established, comprising 104 plots.

Workshop 11 (Jan 2001) – Management Planning for Anegada.

Facilitators: Mike Appleton, Dr Abigail Entwistle.

Objectives: to review of principles of management planning; development of a draft management plan for Anegada.

Participation: 14 people for 10 days

Main Outputs: Draft management plan for Anegada. Development of skills in management planning.

Workshop 12 (March 2001) – Species Recovery Planning for Selected Plant Species.

Facilitators: Drs Mike Maunder, Colin Clubbe

Objectives: to familiarize participants with the principles and practice of recovery planning for threatened plant species; to develop draft recovery plans for three candidate threatened species.

Participation: 13 people for 3 days

Main Outputs: Initiation of recovery plans for 3 key plant species. Development of skills in recovery planning

Workshop 13 (March 2001) – Management Planning for the JR O’Neal Botanic Garden

Facilitators: Drs Mike Maunder, Colin Clubbe

Objectives: to review the main principles of botanic garden management; to develop a strategic management plan for the JR O’Neal Botanic Garden.

Participation: 13 people for 3 days

Main Outputs: Production of draft management plan for JR O’Neal Botanic Garden. Development of skills in botanic garden management and strategic planning.

Workshop 14 (June 2001) – Management Planning for Tourism within Protected Areas

Facilitator: Mike Appleton

Objectives: to review issues affecting planning and management of tourism in protected areas; to develop a general strategy for tourism in protected areas in the BVI.

Participation: 13 people for 5 days

Main Output: Production of a draft strategy for the management of tourists and tourism related activities in Parks and Protected Areas.

Workshop 15 (July 2001) - Species Recovery Planning for Anegada rock iguana.

Facilitator: Mark Day

Objectives: to develop a draft recovery plan for the Anegada rock iguana (*Cyclura pinguis*).

Participation: 9 people for 4 days

Main Outputs: Draft recovery plan for *Cyclura pinguis*. Enhancement of recovery planning skills.

Workshop 16 (September 2001) - Developing a Public Awareness Strategy for BVI National Parks Trust.

Facilitator: Dr Abigail Entwistle

Objectives: to familiarize participants with the principles underlying the building of effective public awareness and public relations; to help develop an effective public awareness strategy for the BVINPT.

Participation: 10 people for 5 days

Main Outputs: Public awareness strategy document produced.

During the course of running the survey and monitoring training workshops a significant body of biodiversity data were collected in the field which have been used in the development of management plans for Gorda Peak National Park and for the Ramsar site and proposed national park on Anegada. These data have provided and will continue to provide valuable information for the development of interpretation materials for the sites, general publicity information for NPT activities and for the developing environmental education programme.

The botanical survey work has produced data of great value for the NPT and some of the results are of global significance for conservation.

The first comprehensive checklist of plant species for Gorda Peak National Park has been produced. This currently comprises 192 species of vascular plants, representing 157 genera and 62 families. Some species remain unidentified due to lack of reproductive material. Monitoring programmes for key species have been set-up with the warden for GPNP and the programme co-ordinator for terrestrial parks. This database has been handed over to the BVINPT and some of the key results have been incorporated into the Systems Plan database so that they can be used in management planning and decision making.

Several regionally restricted range plant species were quantified during these surveys which highlight the importance of this habitat. *Calyptranthes thomasiana* (Myrtaceae) and *Zanthoxylum thomasianum* (Rutaceae) are both on the US Federally Endangered Species List and the subject of existing US Fish and Wildlife Service Recovery Plans, based on the known populations in the US Virgin Islands. *Calyptranthes thomasiana* is known from only two populations comprising 112 individuals (data as of 1994). The initial assessment of GPNP population revealed two populations comprising 34 and 30 individual plants with many seedlings, thus increasing the known world population by more than 50%. *Zanthoxylum thomasianum* is known from approximately 300 individuals (data as of 1985). The initial search of GPNP revealed three adult trees and one seedling, thus adding another important population to the known world distribution. *Calyptranthes kiaerskovii*, a BVI endemic, was discovered in flower and fruit, the first record for this species that until now was known only from a single sterile specimen collected on Tortola in 1895. An initial population study revealed 25 individuals in one population and a single tree in a different region of GPNP. This automatically puts this species into the critically endangered category and a species recovery plan is being developed for it. Amongst other significant finds was a healthy reproducing population of 46 plants of *Machaonia woodburyana*. *M. woodburyana* was first described from St John and thought to be endemic to that island. We can confidently say that GPNP represents an extremely important area of dry Caribbean forest, itself a globally threatened biome

Equally significant research data have been generated for Anegada. A comprehensive checklist of plant species for the Ramsar site has been produced, comprising 137 species of vascular plants from 105 genera and 51 families. Some species remain unidentified due to lack of reproductive material. Monitoring programmes for key species have been set-up with the warden for Anegada and the programme co-ordinator for terrestrial parks. This database has been handed over to the BVINPT and some of the key results have been incorporated into the Systems Plan database so that they can be used for management decisions.

Five species of global significance were discovered and/or quantified for the first time during the surveys on Anegada. Three species had been listed in early literature, but little was known about their distribution. *Acacia anegadensis* (Leguminosae) an Anegada endemic, *Metastelma anegadensis* (Ascepiadaceae), a BVI endemic, and *Cordia rupicola* (Boraginaceae), a Puerto Rican bank endemic, were all located and quantitative surveys undertaken. Results for *C. rupicola* are of particular significance. This species is only recorded for Puerto Rico and Anegada. The status of the Anegada populations was unknown and it is thought extirpated from Puerto Rico. Its widespread occurrence on Anegada makes this the most important site globally for this species. Two new records for Anegada are of particular note. A population of 25 individuals of *Leptocereus quadricostatus* (Cactaceae) was discovered, a species previously known only from a small population in Puerto Rico. The final species, *Malpighia woodburyana* (Malpighiaceae) was known from approximately 50 individuals from small, disjunct populations in Puerto Rico and the USVI. The population census on Anegada revealed 74 individuals of varying ages thus more than doubling the known world population of this species.

Less faunal work was undertaken during the project than planned in the original proposal due to an unfortunate combination of illness and unavailability of the FFI specialist. The Darwin Initiative were kept informed of these circumstances and approved a shift in emphasis towards the botanical work. Consequently faunal inventory work was undertaken in GPNP during year one only. An amphibian and reptile species list was produced for GPNP and a guide for the identification of these species produced.

These data are currently being written up for scientific publication. Until now the results have been reported at the British Ecological Society's winter meeting and informally through radio, TV and newspaper reports in the BVI and through the UK partners' institutional newsletters.

5. Project Impacts

All of the BVINPT planning and activities are now directly linked to the CBD and other relevant international conventions such as the Ramsar Convention. Analysis and updating of the Parks and Protected Areas Systems Plan is providing the core work plan for the NPT. This also feeds directly into the newly approved National Integrated Development Strategy (NIDS), approved by BVI Government (BVI) Executive Council in 2001. BVINPT is playing a key role in the delivery of the environmental section of this important new national planning strategy that has the CBD at its core.

Central to NPT activities is the documentation of biodiversity in National Parks, the development of management plans, including detailed stakeholder analyses, and the implementation of these management plans. The Darwin project has played a key role in enabling this process. This has been achieved through training NPT staff in the various disciplines needed, undertaking the documentation of key biodiversity and the development of management plans for two critical sites. The BVINPT is now poised to extend this process to other National Parks as time and resources allow.

Findings from the Darwin project have already resulted in management action in both sites. Several key plant species identified during survey activity in GPNP occurred relatively close to existing trails. A monitoring system has been established for the warden for GPNP who will ensure that trails do not get widened or carelessly pruned where these species occur such as along the '*Calypttranthes* ridge', a section along the main trail with a large number of individuals of both species of *Calypttranthes*. In another case the trail has already been re-routed to avoid the single seedling of *Z. thomasianum* that was thought to be at risk of being trampled if a large group were to pass carelessly through. The potential dangers of alien invasive species were discussed at length during several workshops and a number of candidate plant species identified in the field. In GPNP these include *Azadirachta indica* (Meliaceae - 'neem') which is aggressively spreading in the near-by settlement of Spanish Town. A relatively large specimen was found within GPNP and has since been removed. This is a target species on the warden's monitoring programme and any further occurrences will also be removed from the park. On Anegada there are several candidate species, including *Cryptostegia grandiflora* (Asclepiadaceae - 'Madagascar rubber vine') and *Bryophllum pinnatum* (Crassulaceae - 'life plant'). Whilst these are common within and near the Settlement, none were observed within the Ramsar site. However, the Anegada warden has also been briefed about the potential problem of invasive plant species. A separate list of alien plants highlighting those that are known to be invasive has been produced. The problem of feral animals has also been highlighted as a potential threat to biodiversity. Feral animals include goats, cattle, cats, rats and donkeys. All roam freely, especially on Anegada. This problem is well known to the NPT who have been raising this issue with Government for many years. The loose livestock programme, currently managed by the Department of Agriculture, has as a main objective the impounding of large hoofed livestock on the island. This effort is dependent on the identification of an area on the island that can serve as a temporary/permanent pound. The programme has only been implemented on the islands of Tortola and Virgin Gorda. It has not yet been implemented in Anegada. Many of these recommendations have been incorporated into the management plans being developed for the two sites. The actual development of these management plans and the transferable skills developed during the workshops are important positive impacts of the project.

Other general considerations arising from the workshops and being considered include possible removal of potentially poisonous plants such as *Comocladia dodonaea* (Anacardiaceae - 'Christmas bush') where they are found in abundance on the trails in GPNP. The need for more interpretation in the National Parks has also been identified and action being taken. New interpretation boards at the two entrances to GPNP are being developed and should be in place in 2002. They will include information generated by the Darwin project. BVINPT are currently building an interpretation centre at the top of the Baths NP that will act as the NPT headquarters

on Virgin Gorda and will be another outlet for highlighting results from Darwin project. Expected completion of this facility is during 2002.

The role of the JR O'Neal Botanic Garden was evaluated during the project. Originally established as a flower garden and maintained under the guidance of the Botanic Society, the garden is now managed by BVINPT as part of its national parks and protected areas system. The future role and activities of the botanic garden was considered in the light of the implementation of article 9 of the CBD (*ex situ* conservation) and a draft management plan produced. Recommendations from the workshop have already been implemented and collections of several of the threatened plant species have been made and incorporated into the garden's living collection. A major display of endemic and threatened species is being planned for the botanic garden, mainly as an education/ awareness-raising tool at present. The conservation role of the botanic garden is being further evaluated in collaboration with RBG Kew partners. A more extensive seed conservation workshop is being planned for 2002 (see section 12).

A very strong case has been made for the establishment of a new national park on Aneгада incorporating the Ramsar site and key surrounding terrestrial habitats. This is based on the joint occurrence of pristine habitat containing globally significant plant species as identified during the Darwin project together with the key nesting areas for *C. pinguis*. However, there is still a major land ownership dispute on Aneгада and this is hampering future conservation activities and the establishment of the boundaries for the national park. BVIG is actively surveying disputed lands and information on ecologically sensitive and local 'hotspots' gathered through assessment exercises has been employed to refine proposals for the creation of a protected area on the island. Lobbying efforts on behalf of identified areas will intensify as recent and new illegal clearances of land within Ramsar site have taken place (November 2001). Ultimately, the decision to create protected areas within the proposed site remains with the BVI Government that have not acted despite the lobbying by the BVINPT. Approval has been given to the BVINPT to flag the Ramsar boundary and this will be completed in early 2002.

The training and capacity building activities were directed towards staff in BVINPT and other key Government ministries and parastatal agencies. Capacity has been increased within the BVINPT as evidenced by their development and implementation of the management plans and their initiation of key monitoring activities. However, their actual staff resources are currently at full stretch and it is difficult to implement all the activities arising from the Darwin project. However, there are plans for further recruitment and a significant element of this will be funded by the introduction of entrance fees for terrestrial National Parks and an increase in permit fees associated with the Marine Conservation Programme. The plan has garnered parliamentary support and approval and regulations are being drafted to regulate all activities. However, staff recruitment and retention is a serious issue. Most young BV Islanders are going into financial and business related careers and it is difficult to attract youngsters into environmental and horticultural-related careers. The botanic garden is yet to have its first BVI or Caribbean curator. Up to now they have come from UK and US for short (eg 2 year) contracts. This has detrimental effects on continuity, long-term planning and training. This will become a more significant issue as the botanic garden takes on a more conservation-focussed role. Since the start of the

project there have been four staff changes at NPT. The original Darwin project co-ordinator left at 12 months and was replaced relatively quickly. Two PR Officers have left and the post remains vacant. The botanic garden curator left towards the end of year two and the post was vacant for one year. The present curator joined after the floral and botanic garden workshops had been completed and so not benefited from these aspects of the Darwin project. Most of the permanent BVINPT staff have benefited from much of the Darwin training (Table 1).

Table 1 - Darwin Workshop Participants showing each participant's affiliation at the time of the training and their location at the time of reporting

Name and Institution	Department	Present Location
BVI National Parks Trust (NPT)		
Joseph Smith Abbott	NPT	NPT
Esther Georges	NPT	NPT
Joy Blaine	NPT	Relocated to UK
Cleveland Sam	NPT	Public Sector Development Programme
Nancy K Woodfield	NPT	NPT
Athley Stevens	NPT	NPT
Keith Grant	NPT	NPT
Eyan Bryan	NPT	NPT
Ganshoun Harry	NPT	NPT
Arona Dewindt	NPT	NPT
Julie Fonseca	NPT	NPT
Rondel Smith	NPT	NPT
Clinton Vanterpool	NPT	NPT
Nicolas Drayton	NPT	Relocated to U.S.V.I
Jude Burin	NPT	NPT
Dawn Leonard	NPT	School Teacher
Raymond Walker	NPT	NPT
Lester Smith	NPT	Changed jobs
Finfun Peters	NPT	NPT
Tracy Omar	NPT	NPT
Conservation & Fisheries Department (CFD)		
Bertrand Lettson	CFD	CFD
Shawn Claxton	CFD	Changed jobs
Tessa Smith	CFD	CFD
Rozina Norris	CFD	CFD
Claudette Henry	CFD	CFD
Margaret Odutayo	CFD	Re-located to Nigeria
Marian Leonard	CFD	CFD
Halsted Lima	CFD	CFD
Mervin Hastings	CFD	CFD
Linda Varlack	CFD	CFD
Orville Phillips	CFD	HLSCC
Lucia Rubain	CFD	CFD
Botanic Society (BS)		
Ann Riegel	BS	Botanic Society dissolved Dec 2001
Ingrid Whistler	BS	Botanic Society dissolved Dec 2001

Barbara Ray	BS	Botanic Society dissolved Dec 2001
Town & Country Planning (TCP)		
Louis Potter	TCP	TCP
Allison Williams	TCP	TCP
Avalinda Freeman	TCP	TCP
Monique Penn	TCP	TCP
Troy Dawson	TCP	TCP
Jason Greenacre	TCP	Change jobs
Dianna Ferrol	TCP	TCP
Agriculture Department (AD)		
Berenice Freeman	AD	AD
Denzil Daniel	AD	AD
Ashley Donovan	AD	AD
Bevinton	AD	AD
Vernon Maduro	AD	AD
H. Lavity Stouff Community College (HLSCC)		
Lianna Jarecki	HLSCC	HLSCC
Clive Petrovic	HLSCC	HLSCC
Tourist Board (TB)		
Shereen Flax	TB	TB
Janice Braithwaite	TB	TB
Josette Derby	TB	TB
Arvan Hodge	TB	TB

One area of training that still needs strengthening is in field identification of both plants and animals. Although confidence and capacity have been increased within the BVINPT as a result of the Darwin training workshops more is needed. For plant identification this will be helped by the establishment of an herbarium that is being planned with the continued support of RBG Kew (see section 12). Techniques of surveying and monitoring have been standardised, but more help is needed with actual field identification. Lack of time and resources prevented the development of the type of field guide/manual that was referred to in the original proposal. However, a start has been made with some field keys and the creation of an image bank of plant portraits has been established. Plans to take this forward are discussed in Section 12.

There was quite a turnover in staff from Government ministries and parastatal organisations in terms of who actually attended workshops. Many individuals attended only one workshop whilst fewer built up significant experience through attending most of the workshops. Unfortunately BVINPT could not exert much influence on who actually attended. These decisions were made by senior managers in the respective Departments. Some people have changed jobs or left BVI (Table 1). This was completely outside the control of BVINPT and the Darwin project in general. The benefits of the training must really be considered as opportunities for individuals rather than contributing to a collective BVI biodiversity capacity. However, key trained individuals remain within the Conservation & Fisheries, and Town & Country Planning Departments, and they are applying their biodiversity knowledge and skills. This concerted effort to keep the invitations open and include all these agencies in the Darwin workshops has been of one significant benefit. It has

increased inter-departmental dialogue, which is a positive outcome of the project. For instance, the BVINPT now provides input as part of recurrent meetings of the Land Development Control Authority. While the BVINPT does not have a vote on whether development within any area outside of protected areas can or should occur, valuable input is provided as to the possible impact that development activities may have in areas adjacent to protected or ecologically sensitive areas. This is a direct outcome resulting from collaboration with the Town and Country Planning Department and the identification of the BVINPT as an authority responsible for the management of biodiversity within and outside protected areas.

The project has further strengthened the collaboration between BVINPT and the UK project partners, who continue to co-operate individually and via the Wider Caribbean Working Group (WCWG) of the UK Overseas Territories Conservation Forum and the Forum itself. An e-group has been established for the WCWG. This has facilitated more reliable dissemination of information and more effective participation in meetings by BVINPT and other UKOTs not able to physically attend meetings in the UK. At their 5-yearly science review in 2001 the Darwin project was used by Kew partners to illustrate the importance of work in UKOTs. Kew's UKOTs programme was highly commended by the international panel of reviewers. As a result of this science review UKOTs has become a key strategic area for increased activity by RBG Kew. This has allowed RBG Kew to allocate some core funds towards further collaboration with BVINPT (see section 12).

6. Project Outputs

Sixteen workshops were conducted over the 3½-year project period, representing 15 training weeks for 189 people equivalents (Appendix 11). The actual number of individuals that benefited from this training was 52 with approximately 50% of them attending several workshops (Table 1). The variation is accounted for by staff turnover, some people attending only the one-specialist workshop that related to their area of responsibility and some people being off island or otherwise unable to attend specific workshops. However, key BVINPT staff participated in all workshops. The original proposal estimated a workshop attendance of 500 individuals at 20 planned workshops weeks. The discrepancy had several causes, and the Darwin Initiative was kept fully informed of this situation throughout the project through written correspondence. The main areas of activity where planned workshops were not completed were in environmental education (2 weeks) and public awareness/ tourism (1 week). This was due to the facilitator being unavailable and the co-funding for the environmental education activities being unexpectedly withdrawn due to a change in UK regulations. The money had been committed via the UK Landfill Fund that then could not be used in UKOTs. Alternative funds could not be secured. BVINPT is committed to undertaking these activities as soon as an Environmental Educator is appointed to their staff. Consequently, there were no follow-up seminars with teachers and no environmental education pack produced. The public awareness/ tourism activities did not go beyond a single workshop at the end of the project. The cascade to the tourist operators and taxi drivers has not yet happened and will now be scheduled after the end of the project once the BVINPT appoint a replacement PR Officer. The PR Officer's position changed twice during the course of the project and

remains vacant, thus hampering this aspect of the project. Because of the planned involvement by teachers and tour operators these workshops were estimated at 40 participants, so their non-running also contributed to the lower overall numbers. One workshop week of survey activity was lost to hurricane Lenny in November 1999. It was not possible to repeat this second week within the finances of the project and the availability of the facilitators. One of the management planning workshops was completed in one week whereas the original project estimated 2 weeks. The average workshop attendance was 13, rather than the 20 estimated in the original proposal. The difference was due to the Government agencies not releasing as many staff to attend workshops as they had originally committed/estimated when the project was being developed. The other change was in the balance between plant and animal survey activities. Due to both illness and lack of availability of the main animal (reptiles and amphibians) survey facilitator there was a greater emphasis placed on habitat and plant activities in the second half of the project. The Darwin Initiative was informed of this and approved some re-allocation of funds and the change in emphasis of the project.

UK Project staff spent 37 weeks in the BVI working on the project. In addition to the training outputs significant research outputs were also achieved (Appendix 11). Draft management plans for GPNP and for Anegada proposed National Park are complete. BVINPT is further developing these and implementing the major recommendations. A draft recovery plan for *C. pinguis* is complete and being implemented. Information from the recovery planning workshop and Darwin project has been fed directly into the work of the IUCN/SSC Iguana Specialist Group (ISG). BVINPT Director, Joseph Smith Abbott, and Darwin Project Co-ordinator, Raymond Walker, are both members of ISG and there has been close co-operation throughout the project. The plant species recovery workshop considered 3 candidate species: *Zanthoxylum thomasianum*, *Calypttranthes thomasiana* and *Calypttranthes kiaerskovii*. As a result of this BVINPT have adopted the US Fish and Wildlife recovery plans for *Z. thomasianum* (1993) and *C. thomasiana* (1997). They will be communicating with the US Fish and Wildlife Service to ensure that those data collected during the workshops and the results from their monitoring programme are fed into revised recovery plans. Because these plans weren't generated solely by the project they have not been included under output 9 in Appendix 11. A recovery plan for *C. kiaerskovii* is being developed, but is not far enough advanced to include under output 9. An IUCN sponsored redlisting workshop is being planned for late 2002 to formally evaluate the status of these threatened plant species and assign and ratify an IUCN category of threat for them. As well as Darwin partners, we hope that representatives of the US Fish and Wildlife Service and the US Parks Department will attend.

Two other plans have been completed during the project and represent important outputs. The public awareness strategy is complete and ready to be adopted pending the appointment of a new PR officer for BVINPT who will take responsibility for this. The strategic management plan for the botanic garden is now a working document guiding the development of the JR O'Neal Botanic Garden.

Papers for submission to scientific journals are being prepared and at least two should come out of the plant work. Some of the more important new plant records for the BVI will also be published in recognised botanical journals. However, these will all be published after completion of the project.

The original proposal showed some inconsistency between database (12a, b) and species reference collections (13a, b). However, both targets have been met. BVINPT has a plant database for GPNP and for Anegada (12a, b). Collections (seed and cuttings) have been made of several of the threatened plants identified by the project. These have been established in the JR O'Neal Botanic Garden, thus enhancing their living collection (13b). BVINPT has not yet got adequate facilities for keeping herbarium specimens. All species collected are currently housed in the Museum of Natural History at the Smithsonian Institution (13b) and duplicates will be repatriated as soon as a herbarium is built at BVINPT. This is being planned with RBG Kew's assistance (see section 12).

Most of the dissemination output targets for the project have been exceeded. The project generated a lot of interest in the BVI, and amongst the broader UK Overseas Territories community. BVI radio, newspapers and TV were all very supportive and carried regular announcements, articles and interviews about the project and workshop results. Most of the radio and TV material was run for a week on daily news programmes and so a lot of publicity was generated and output targets exceeded (14b, 15a, 18d, 19a). It proved much more difficult to generate this level of interest in the UK in areas outside the direct control of project partners. So although output targets were exceeded for press releases/ articles (15c) we were unable to attract any radio interest in the UK (19b). The number of conferences/seminars organised to disseminate project results (14a) was only partially achieved. This is partly due to the lack of involvement of teachers and tourist operators as explained earlier. The original proposal listed project review meeting as a 14a output. Although these reviews took place because they only involved project partners these have not been included in Appendix 11. Because this is the first Darwin Initiative project to be managed by a UKOT agency a lot of interest in the project has been generated in other UK Overseas Territories. The project has been used as a model for other applications, some of which have since been successful.

We have had a lot of debate about the best types of products that would be lasting vehicles for the dissemination of project results. We felt that because we were getting so much publicity for the project locally the production of newsletters specifically about the project would be less effective than a series of biodiversity posters. Consequently rather than produce 3 newsletters as suggested in the original proposal we have produced a single end of project summary newsletter. In addition we are producing a series of posters on biodiversity issues. These will be distributed to the schools, tour companies and also sold through the BVINPT. Several other related brochures are also being planned, but will be completed after the end of the reporting period.

Approximately £200 worth of books has been donated to BVINPT (output 20). Because of the greater emphasis on the plant components of the project we have greatly exceeded the number of geo-referenced permanent field plots (PFP) established at both sites (output 22). Nineteen, rather than 10 PFP have been established at GPNP and 27 permanent transects, rather than 10 have been established in the Ramsar site in Anegada. These constitute an important opportunity for future collaborative research.

Both UK partners have made substantial contributions in kind to the project, amounting to an estimated £5,000 from FFI and £9,000 from RBG Kew. An additional £6,000 was secured from the Thoresen Foundation for the final public awareness and Aneгада management planning workshops. The Thoresen Foundation has also committed up to £4,000 for the cost of any public information materials generated directly from the workshop. These will be produced after the reporting period once the new PR Officer has been recruited. The BVINPT contributed an estimated £XXX during year one and an additional £XXX during year three.

The BVINPT work plan has already absorbed many of the projects activities and so results will continue to be disseminated as part of their on-going activities funded from their core budget. A new guidebook of the National Parks of BVI is in preparation and will include a section on biodiversity issues and results from Darwin project. In addition the project partners are already planning further Darwin follow-on activities (see Section 12) and so they will be directly involved in further information dissemination.

7. Project Expenditure

Please see attached audit reports for the project from June 1998 to November 2001

8. Project Operation and Partnerships

This project is the first Darwin project to be managed by a biodiversity institution in a UK Overseas Territory, rather than an agency based in mainland UK. The BVI National Parks Trust managed the project with RBG Kew and FFI being its major UK mainland collaborators.

The BVINPT has the statutory responsibility for managing all the National Parks in the Territory, currently 18 terrestrial and 1 marine NP. The responsibility for general environmental matters and the management of biodiversity issues outside National Parks is the statutory responsibility of the Conservation and Fisheries Department of the BVI Government. These two institutions work closely together on many activities and Conservation and Fisheries was written in as the main local partner in the original project proposal. However, several other Government Departments have an interest in biodiversity issues and their activities can directly impact biodiversity. Consequently, when the schedule of training activities was being drawn up these other institutions were invited to participate by sending representatives to attend the workshops. These other institutions, not documented in the original proposal, comprised Town and Country Planning Department, Agriculture Department, Tourist Board and the H. Lavity Stoutt Community College that runs a number of biology and environmental programmes. Although all of the planning and scheduling of project activities was undertaken by BVINPT in consultation with its overseas partners, this shared involvement with the training activities fostered a discussion forum amongst the various government departments that has been very positive. This is evidenced by the more frequent discussions, advice and generally greater involvement there now is corporation between these departments. It also led to some very interesting debates on

the value of biodiversity between Town and Country planners and NPT staff in the field. Unfortunately, after the first year of the project the involvement of staff at the H. Lavity Stoutt Community College dropped off because of the difficulties of fitting in the project training schedule with the College's own timetable and staff teaching commitments.

Other visiting specialists were written into the original project proposals and so brought their own Institutional support to the programme. Dr Michael Gillman from the Open University, UK, and Dr Pedro Acevedo from the Smithsonian Institution, Washington, USA, were regular contributors to training activities and joined several workshops. Although they were fully supported by their Institutions in this respect, they were acting as consultants for the project and so their institutions were not involved in any planning activities.

No other Darwin project was being conducted in the BVI during the implementation of this project. However, some related biodiversity research activities were being conducted BVI and involved BVINPT staff. The most notable is the collaborative work with the IUCN/SSC Iguana Specialist Group on the critically endangered Anegada rock iguana (*Cyclura pinguis*). BVINPT publicity officer, Cleveland Sam, also collaborated in a regional Darwin project, People and Corals. This Darwin Initiative project was co-ordinated by the Caribbean Conservation Association (CCA), based in Barbados, and the Field Studies Council in UK. He attended workshops in the region and UK and BVINPT hosted one of the workshops in Tortola

9. Monitoring and Evaluation, Lesson Learning

A Darwin steering group was established comprising BVINPT, RBG Kew and FFI membership. The main communication channel was via email. All partners had desktop access to email and communication was quick and efficient. This proved to be very important in efficient project planning, logistics and decision making.

Project evaluation and review meetings were held whenever it proved possible to get partners together. Three formal ones were held in the UK when BVINPT staff were in England, one in each of the three years of the project. A review meeting was held after each workshop to evaluate the activities and to plan future work. This regular internal evaluation was held to keep track of activities and to highlight potential problems. BVINPT staff kept the Darwin Initiative informed of all significant changes and obtained approval to modify the project schedule.

No formal external evaluation of the project has been undertaken. However, for several of the workshops early in the project participants were asked to complete a written evaluation of the workshop. This was used to gauge the level of the teaching and evaluate the effectiveness of the material and to investigate how effectively the material would be disseminated. The written feedback was generally very positive in terms of content and effectiveness. There was a mixed response in terms of how much direct use the information would be put to and this reflected the differing ways that individual participants used biodiversity information on a day to day basis. A questionnaire during the second main plant survey workshop (Nov 1999) showed that

there was an approximately 50% split between those who made direct use of the plant information generated from the first workshop (Nov/Dec 1998) and those who had not. This largely reflected individuals' job responsibilities.

The understanding and flexibility of the Darwin Initiative has been a valuable element in the project success. In real conservation activity situations change and unforeseen circumstances arise. The Darwin Initiative responded quickly and positively to changes suggested by the BVINPT during the course of the project. This was greatly appreciated and had a significant and positive impact.

A great deal of experience has been gained by BVINPT in organizing and running workshops. BVINPT Staff now have a very good idea of what does and doesn't work and this is a very important transferable skill and will be useful for the future.

10. Darwin Identity

In BVI the project has been known as the Darwin Initiative project or simply the Darwin project for the past 3½ years. All press releases, radio and TV interviews have stressed the source of the funding and used the Darwin name extensively. Journalists make enquiries to the BVINPT asking what is happening with the Darwin project. Because there are no other comparable projects operating in the BVI and no other Darwin projects the BVINPT has become associated with the Darwin Initiative and the steady flow of UK project staff into BVI has reinforced this. In this way the Darwin project was a distinct entity within the Territory. Several public talks have been given about the Darwin project. The Director of the BVINPT has talked to the Rotary Club of Tortola. A seminar was arranged at the beginning of the project, during workshops 2 and 3, to promote the project and the Darwin Initiative. Drs Hankamer, Daltry, Gillman and Clubbe each gave presentations to a public forum at the H. Lavity Stoutt Community College and Dr Clubbe gave a talk on project discoveries as part of a lecture series also run at the Community College. In these ways a reasonable cross-section of BVI society should have become familiar with the Darwin project and the existence of the Darwin Initiative.

The project employs a Darwin project officer who was specifically recruited as such after the original project officer, an existing member of staff at the start of the project, re-located to the UK towards the end of the first year of the project. Workshop participants were made fully aware of the fact that the Darwin Initiative was funding their participation and providing the refreshments during the workshops. They associated Darwin workshops with the BVINPT, visiting UK staff and biodiversity work in BVI.

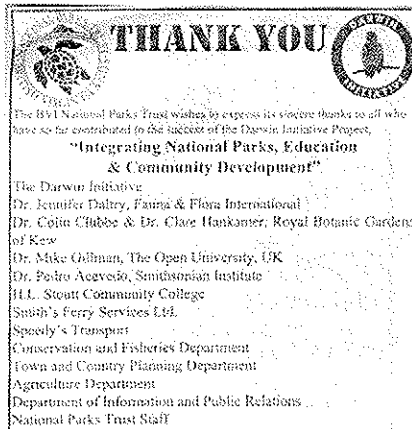


Figure 1: Thank you advert placed in BVI press

The Darwin logo was used wherever possible eg on publicity and workshop material and more creatively in thank you announcements in the newspaper (eg Figure 1).

11. Leverage

The BVI is a relatively small Territory and the BVINPT staff are fully committed to their various on-going responsibilities and specific duties under the Darwin project. Because of this few efforts were made to enlarge the scope of the programme or to attract large sums of money for additional biodiversity work. However, the UK partners donated significant sums to the project. This was mostly done as in kind support, but also as monetary contributions. UK project partners contributed an estimated £28,950.

FFI secured £10,000 from the Thoresen Foundation towards the workshop costs and up to £4,000 is still available for production of materials arising out of the public awareness workshop. A number of local companies gave the BVINPT discounts on a range of goods and services as a contribution to the project. These included reduced accommodation costs for visiting UK project staff and inter-island transport costs.

Funding discussions between BVINPT staff and UK project staff have mostly centered on funding future activities and a range of international donors have been considered. Those that look promising for future work and are being considered are the US Fish and Wildlife Service and the Sea Ecology programme.

12. Sustainability and Legacy

The project was conceived and developed in a collaborative manner between BVINPT, FFI and RBG Kew. Activities and projected results were fully integrated into the NPT's Parks and Protected Areas Systems Plan. This integration into NPT's key planning and guiding document ensures sustainability and a long-term legacy for the activities and partnerships catalysed by the Darwin programme.

The project partners view the end of the Darwin project as the opportunity to move on into other areas of collaboration. UK Overseas Territories are a key area of work for RBG Kew and BVI has become a flagship project. The Caribbean and BVI in

particular is a key regional focus for FFI. A number of follow-up activities are already underway. The Darwin project officer is the programme co-ordinator for terrestrial parks. This is a core post for BVINPT and continued funding for this position has been secured.

The Millennium Seedbank Project (MSBP) at Kew has just completed its UK mainland targets of banking 97% of the mainland UK flora. It is seeking opportunities to extend this programme to the UKOTs. During the UKOT conference in Gibraltar initial discussions were undertaken between Dr Steve Alton, MSB UK co-ordinator and BVINPT Director about establishing a BVI seedbanking project. Duplicate seed collections can be held at the MSB for the host country under the provisions of the CBD and without cost to the host country. A seed conservation workshop is being planned for 2002 to be hosted by BVINPT and facilitated by Drs Steve Alton and Colin Clubbe. Funding is being sought by BVINPT to establish an herbarium. The Darwin co-ordinator will attend the 8-week International Diploma course in Herbarium Techniques at Kew in 2003. This particular course is being aimed at people about to establish or having recently established herbaria, and is being designed with UKOTs in mind. The Lennox Boyd Memorial Trust will provide funding.

Dr Pedro Acevedo has plans to try and locate funding to complete a Flora of the Virgin Islands project. This would be a development of his earlier Flora of St John project and the Darwin project. Kew have secured funding to get the whole botanical team together to start some fieldwork towards this project during 2002, following on from the Darwin survey work. A planned output of this work is a more user-friendly field guide to plants of the BVI that will draw heavily on materials produced during this Darwin project and further build BVINPT field botanical skills. Initial discussions have been held with the newly appointed national GIS officer for BVI, based in the Conservation and Fisheries Department, to begin mapping the plant data generated during the Darwin project. Any future data collection will be planned in collaboration with the GIS officer to ensure that data can be directly fed into the developing national GIS and that databases are electronically compatible.

In November 2001 Dr Colin Clubbe visited the island of Great Tobago with BVINPT to evaluate the possibility of a recovery and restoration project. The island is a national park managed by BVINPT and an important bird nesting area. A programme of goat eradication is nearing completion on the island. At a project review and forward planning meeting held in January 2002 in UK this project was identified as a priority. A project proposal is being developed and we are looking to secure funding to start this project.

FFI will continue to be involved with the Anegada rock iguana recovery programme in collaboration with the IUCN/SSC ISG.

The legacy of the Darwin project will also continue in the on-going monitoring of the key plants of global conservation significance. Plans to set-up long-term phenological and related monitoring work that park wardens can undertake are at an early stage due to time constraints, but this is an area for development. Simple survey forms that visiting tourists could complete on a voluntary basis may be considered. A successful programme of this type has been implemented in the Falkland Islands by Falklands

Conservation, a member of UKOTCF. As mentioned in section 6 a threatened plant species workshop is planned for the end of 2002. The IUCN Global Red List programme officer has already agreed to participate, thus ensuring that the results of the redlisting process will immediately be adopted by IUCN and included in the 2003 Global Red List.

13. Value for Money

This project has engaged a lot of people, been successful in sharing many skills and has accomplished a lot on a relatively limited budget in an expensive country.

The Darwin project has been catalytic in a number of ways. Information gathered throughout the project's life has been extensively employed in maps, databases and planning exercises undertaken by not only the BVINPT but also other local, regional and international agencies. Project information has provided the basis for concrete proposals for the delineation of protected areas in Anegada and the management of biodiversity within GPNP. All efforts were made to incorporate all agencies responsible for the management of biodiversity with major databases and other outputs being shared between the Conservation and Fisheries Department and the Town and Country Planning Department. Information gathered has been used to refine the *ecologically sensitive areas* map produced by the Conservation and Fisheries Department and their Complete Resources Information System (CRIS) generated with the assistance of the UK Overseas Development Authority (ODA) and the Organisation of Eastern Caribbean States - Natural Resources Management Unit. Plant data has been incorporated into the *C. pinguis* Recovery Plan developed by the IUCN-SSC Iguana Specialist Group. Publicity associated with the implementation of project activities and biodiversity conservation objectives have aided in recognition of the BVINPT as managers and responsible caretakers of the environment, thus augmenting the ability of the Trust to advocate for the protection of additional areas identified. Training and capacity building activities have been core to project implementation and provide the basis for continued collaboration and joint planning exercises. Tangible and intangible outputs were derived from the project.

Joseph Smith-Abbott, Director BVI National Parks Trust, Project Leader
Raymond Walker, BVI National Parks Trust, Darwin Project Officer
Colin Clubbe, Royal Botanic Gardens Kew, UK Project Co-ordinator

27 February 2002