Darwin Initiative for the Survival of Species

Annual Report - 23 May 2003

Biodiversity Conservation in Cuba

1. Darwin Project Information

Project title	*Biodiversity Conservation in Cuba*
Country(ies)	*Cuba*
Contractor	*Dr D.W. Minter, BioNET-INTERNATIONAL*
Project Reference No.	*162/10/001*
Grant Value	*£124,500*
Start/Finishing dates	*April 2001 / March 2004*
Reporting period	*October /March 2003*

2. Project Background

The project is located in Cuba, a country subjected for many years by the USA to an almost universally condemned economic blockade. In comparison with other countries of similar GDP, Cuba has an excellent infrastructure and high levels of education and health. The blockade, however, means there is a severe lack of modern equipment. This is a limiting factor in the country's efforts to conserve biodiversity. The present project addresses that problem.

3. Project Objectives

The "log-frame" from the original proposal is included in this Report (Appendix 1). The objectives of this project, as stated in the original proposal were to:

- Train nature reserve staff of at least 15 Cuban nature reserves.
- Produce new management plans for these reserves.
- Computerize existing and newly generated information about neglected groups of organisms (at least 30,000 records), using that information to produce conventional and electronic identification guides.
- Build Cuban institutional capacity by pouring as much donated equipment as possible (including at least 45 computers) into its system of nature reserves and biodiversity institutions.

These objectives have not been modified over the last year.

4. Progress

- **Summary of progress up to start of present reporting period**. The project began in April 2001, with the formal offer of a grant received on 7 July 2001. I was suffering serious ill-health at the time. Up to the start of the present reporting period, the following work was done: 45 donated computers and ancillary equipment were acquired, checked, packed, labeled, with free air-freight organized to Havana (April 2001); all 45 donated computers arrived safely, and were unpacked and checked, suitable recipients were identified and contacted (in Cuban nature reserves and institutions working with biodiversity), and the computers were distributed (April 2001); an internet site was established for the project and work began on internet sites for individual Cuban participants (May 2001); Dr Mena Portales made a one month visit to the UK and Russia (where he participated in a symposium organized through my other then current Darwin Initiative project), and during his visit to the UK, project objectives were communicated to him, with discussions of how to achieve aims, and

work preparing an HTML format version of Cuba's National Fungal Conservation Strategy (a spin-off from the earlier Darwin Initiative project "*Fungi of the Caribbean*") (May 2001); Mr Hugo Iglesias Brito made a one month visit to the UK; during his visit he prepared data for distribution maps of Caribbean fungi (a spin-off from the earlier Darwin Initiative project "*Fungi of the Caribbean*") (September 2001); preparations were made for the first Darwin Initiative workshop for Cuban nature reserve staff, to be held in November, in Havana, with Mr Alan Bennell (Director of Public Relations, Royal Botanic Garden, Edinburgh) as guest speaker organized at no cost to the project (October 2001); preparations were made for November field work in Viñales and Alturas de Banao (October 2001); a Darwin Initiative workshop was held in Havana at the Jardín Botánico Nacional, with the topic of preparing management plans for nature reserves, and with 10 participants plus local organizers, and Dr Minter and Mr Bennell (November 2001); field trips were made to Alturas de Banao (Sancti Spíritus province), and Viñales (Pinar del Río province), five scientists participating in each field trip (November 2001); two scanners were delivered to Cuba (November 2001); plans for rebuilding the La Sabina field station in Alturas de Banao were discussed (November 2001); preparations began for Cuban scientific participation in the *IV Congreso de la Asociación Latinoamericana de Micología* (Xalapa, Mexico) in May (February 2002); 10 donated laptops were acquired for Cuba (February 2002); the possibility of a Scanning Electron Microscope (SEM) and other equipment being donated to Cuba for biodiversity work was investigated (February 2002); the SEM was offered to Cuba, and the possibility of transporting it was investigated (March 2002); by the end of the first year of the project, thousands of database records had been keyboarded and edited, and progress had been made towards production of a *Checklist of Venezuelan Fungi* (a spin-off from the earlier Darwin Initiative project "*Fungi of the Caribbean*").

- **Comparison of agreed project implementation timetable with actual results**. In almost every aspect this project is either on time or ahead of schedule. Each item in the agreed project implementation timetable for 2002-2003 is reproduced below with a comment describing what happened in reality.
  - **June 2002**. Second consignment of IT equipment dispatched. **Comment**. The second consignment,10 laptop computers, was airlifted to Cuba in early May 2002.
  - **November 2002**. Second consignment of equipment arrives in Cuba. **Comment**. The second consignment, 10 laptop computers, arrived in May 2002, and had cleared customs and reached beneficiaries by June 2002.
  - **December 2002**. At least 30 computers distributed by this point. **Comment**. Nearly 60 computers had been distributed by this point, including a small number purchased in Cuba.
  - **December 2002**. Performance review of Caribbean Fungal Identification Service. **Comment**. As noted in last year's report, starting in September 2001, there was a series of anthrax outbreaks mainly in the USA, where there were some press suggestions that the motive was terrorism and that Cuba was implicated. These (and subsequent similar alarms with ricin in Europe) have made it impractical at present to make any progress with the fungal identification service which it was hoped would be established by this project. After discussion with a representative of the British Council in Cuba, development of that service was been put on hold until the biosecurity implications became clearer. For further discussion of this part of the project, see the paragraphs below on difficulties in 2002-2003 and on adaptation of the design of the project.

  Many additional results were achieved during 2002-2003. These are listed later in this report.

- **Training 2002-2003**. Two training courses were scheduled for 2002-2003, and both were successfully run.
  - A course training parataxonomists in basic techniques for collection and identification of fungi was run in November 2002 at Mil Cumbres, a protected area administered by *Flora y Fauna*, about 100 km west of Havana. Three Cuban mycologists from Havana, all members of my Darwin Initiative team, led the course. Nine members of staff from three of *Flora y Fauna*'s protected areas participated.
  - A workshop on writing management plans was run in February 2003 at Alturas de Banao, another protected area also administered by *Flora y Fauna*, about 300 km east of Havana. The course was led by Jose Miguel Rodríguez, Assistant Director of *Flora y Fauna*. About 12 members of staff of the protected area, including

the local schoolteacher, participated. Dr Mayra Camino, one of the collaborators of this Darwin Initiative project, and I were also present and assisted. In fact, this workshop was only one of a series being organized through *Flora y Fauna* in collaboration with the present Darwin Initiative project. It has been highlighted for this report because it was held in the interesting surroundings of the half-completed new *Darwin Building* being constructed by the present Darwin Initiative project at the La Sabina field station.

In addition to the two scheduled training courses, the following other activities of the project in 2002-2003 had significant training elements.

- A visit to the UK by Dr Mayra Camino in July-August 2002 (with travel funded through a separate British Council project), partly to help prepare websites for Caribbean mycology, partly to develop collecting experience of myxomycetes with British amateurs.
- An international workshop on myxomycetes in November 2002 led by Dr Mayra Camino and organized through this Darwin Initiative project, with fieldwork at Alturas de Banao, with participants from Cuba, Mexico, Spain, the UK, Ukraine (tropical experience for Ms Tatiana Kryvomaz, a collaborator from my Ukraine Darwin Initiative project) and the USA.
- A visit to Cuba by Dr Paul Kirk (CABI Bioscience) in November 2002, with training in design of mycological websites for Hugo Iglesias, one of the collaborators of this Darwin Initiative project (Dr Kirk's visit was organized through this project, but funded from other sources).
- A visit to the UK by Dr Hugo Iglesias in March 2003 (with travel funded through a separate British Council project), mainly using his training from Dr Kirk to produce websites for Caribbean mycology, but also with time to study reference collections of lichen-forming fungi in CABI Bioscience and the British Museum.
- A visit to the UK by Dr Mayra Camino in March-April 2003 (with travel funded through a separate British Council project), mainly to help Dr Iglesias produce websites for Caribbean mycology, but also with time to study reference collections of myxomycetes in CABI Bioscience, Kew and the British Museum. Dr Camino's visit was synchronized so that she could go on for a further two months of separately-funded study with Prof. Gabriel Moreno at the Universidad de Alcalá de Henares in Spain, thereby maximizing benefits from several different projects.

- **Problems 2002-2003**. My health has, thankfully, remained much improved. Three significant difficulties were encountered during the past year. **The first** arose from the difficult political climate surrounding countries with which the USA does not have friendly relations and, in particular, with the issue of biological weapons of mass destruction, exacerbated by reports in the press of continued threats from anthrax, ricin and other dangerous biological substances in the hands of terrorists. Under these conditions, particularly given that the Cuban government believes the USA is waging biological warfare against the country, it has simply not been realistic to start a regional fungal identification service. Instead I have continued to concentrate on improving the infrastructure of mycology within Cuba to be ready to establish such a service as soon as a more favourable political climate re-appears. I am also exploring ways of starting a partial service which might avoid some of these problems. These initiatives are described in the next paragraph. **The second** has been the delay, totally out of our control, in transport of the big consignment of donated material, including the scanning electron microscope and freeze-drier, acquired during 2002. The British Embassy in Havana has been sympathetic to this problem, but advises that little can be done except to wait. The latest information is that a boat will take this (and a lot of other) donated material to Havana in late April 2003. Although the scanning electron microscope was packed with great care inside a sealed plastic cover with desiccants, I am now anxious about what its condition may be on arrival. **The third** has been that Dr Miguel Rodríguez, the Cuban co-ordinator of the project has been diagnosed as having malignant lung cancer. At present he is unable to work (though he continues to receive support from the project). No-one expects him to be able to return to work. At present Dr Mayra Camino and Dr Julio Mena Portales (Instituto de Ecología y Sistemática) are standing in for him, and their hard work and enthusiasm are softening the effects on the project of the absence of this able, dedicated and wise colleague.

- **Modifications to project design**. Various modifications have been made to the project, one of necessity, the others through opportunism to strengthen the project.
  - Most thought has been given to surmounting the problem of biosecurity for the proposed regional fungal identification service. International transit of fungal material at unpredictable times is a necessary component of an international fungal identification service. In the present political climate, the Cuban government is unlikely to permit importation of live material at unpredictable times from sources over which they have no control. In the UK, CABI Bioscience runs a long-established international fungal identification service, and has all of the facilities and permissions necessary for biosecurity. Because of its funding profile, however, CABI Bioscience levies a charge for each identification at such a rate as to make the service beyond the purse of many potential customers particularly in developing countries.

    An agreement between CABI Bioscience and my Cuban collaborators to incorporate their mycological expertise into the CABI Bioscience identification service may therefore be mutually beneficial. CABI Bioscience could advertize a new, less rapid but much lower cost identification service limited to specimens; it would receive material submitted for this service, check it for biosecurity clearance, freeze it to ensure no living arthropods were present, then dry it. Periodically CABI Bioscience would then make up a parcel of this material, now in the form of dried preserved herbarium specimens, sending that parcel to a designated recipient in Cuba who would distribute each specimen to the appropriate Cuban specialist and administer the identification service locally, replying to clients by e-mail. Charging for the service would be handled by CABI Bioscience, with the proceeds being shared between CABI Bioscience and the Cuban scientists or institutions, as appropriate. Each parcel arriving in Cuba would thus come from a single known source - a long-standing collaborating institute. Furthermore, each parcel would be guaranteed to contain only treated herbarium specimens, and would arrive at a predictable time. As a result, most if not all biosecurity objections could be circumvented.

    At present I am exploring this possibility with CABI Bioscience and my Cuban partners. Success will only be likely if the proposed procedures satisfy Cuban biosecurity concerns, and if CABI Bioscience views this potential agreement as commercially viable and not endangering any aspect of the present service.

  - Good progress in other areas of the project in 2002 meant that it was possible to divert some resources to maintaining Cuba's excellent international profile in mycology beyond the planned participation in the *4th Congreso Latinoamericano de Micología* (Xalapa, Mexico, May 2002). Combining money from this Darwin Initiative project and from my Darwin Initiative project in Ukraine, and with other funding from the British Council, it was possible to organize participation in the following additional meetings: BioNET-INTERNATIONAL's *3rd Global Workshop* in Pretoria (July 2002, Dr Julio Mena Portales); *7th International Mycological Congress* in Oslo (August 2002, Dr Julio Mena Portales, Dr Miguel Rodríguez Hernández, me); *4th International Congress on Systematics & Ecology of Myxomycetes* in Brussels (August 2002, Dr Mayra Camino). To minimize costs, Dr Mena Portales, Dr Miguel Rodríguez Hernández and I travelled together from London to Oslo in my old Land-rover, camping en-route, together with Dr Tetiana Andrianova (funded through my Ukrainian Darwin Initiative project), altogether an unforgettable experience.

  - In last year's annual report, the possibility was raised of constructing a new "*Darwin Building*" at La Sabina field station in Alturas de Banao protected area to replace the old building which had been eaten by termites. That has now been done. The building (4 bedrooms, 2 bathrooms, one large common room and an extensive verandah) was completed in April 2003, as a splendid additional and unexpected output from this project. A lot of goodwill has been generated by this work, which was noticed at the highest level: Guillermo García, one of the four surviving Commandantes de la Revolución (Fidel Castro, his brother Raúl and Che Guevara are, or were, other people of this rank) personally smoothed the way for this work. Completion of that work has opened the door to many other possible and exciting activities for the project

or for a subsequent extension. The field station's water supply, for example, is in a terrible condition, while an interesting and historic building has been identified as a suitable visitors' centre at the entrance to the protected area - work on both of these potential assets would have enormous potential for developing sustainable tourism in the area. Similar buildings and similar problems are known to exist at other protected areas. Following the most welcome invitation to apply for an extension of this project, I will be exploring these and other possibilities in the forthcoming proposal.

- **Proposed timetable (workplan) for the next reporting period**. Timings approximate; activities not exhaustive.
  - **April 2003**. Putting pressure on the organizers of the boat taking our third consignment to Havana. If time available, adding to that consignment. Fieldwork in Viñales.
  - **May 2003**. Preparing proposal for extension of project. Course for parataxonomists.
  - **June 2003**. I plan to visit Cuba in the second half of the month. Dispersal of materials from third consignment (if boat has arrived by then). Manuscript of guide to insects and fungi of sugar cane ready for final editing.
  - **July 2003**. Publication of special Darwin issue of *Revista del Jardín Botánico Nacional de Cuba*. Possible participation by Dr Mayra Camino in a myxomycete workshop in the Great Smoky Mountains (USA).
  - **September 2003**. Course for parataxonomists.
  - **October 2003**. I plan to visit Cuba in the second half of the month or early November 2003, possibly with Dr Nick King (BioNET-INTERNATIONAL), Mr Alan Bennell and Prof. Steve Blackmore (Royal Botanic Garden, Edinburgh) and, possibly, two others. Expedition to eastern Cuba. Inauguration of new Darwin building at Alturas de Banao.
  - **January 2004**. Management plans of 15 reserves completed.
  - **February 2004**. Guide to insects & fungi on sugar cane published. CD identification guide of common Cuban plants produced.
  - **March 2004**. Project ends. Final report writing.

5. Partnerships

- **Collaboration with Cuban scientists**. Collaboration remains uniformly positive, with most friendly and trusting relations being maintained on both sides. No difficulties or unforeseen problems (other than those already listed) have occurred. These relationships contain many advantages, but these include no unforeseen or new ones within the last period of reporting.
- **Collaboration with other bodies**. **Cuban government funded projects**. The present project dovetails neatly with the Cuban government funded projects "*Diversidad Fúngica en la Reserva de la Biosfera Sierra del Rosario*" (which supports similar inventorial work at a reserve not covered by the Darwin Initiative support) and "*Diversidad Fúngica en la Reserva Ecológia Alturas de Banao, Escambray*" (where the very modest support from the Cuban government adds flexibility to the Darwin Initiative project work). In both cases members of the Darwin Initiative project team are fully involved also with the locally funded work. **British Council funded project**. The recently completed British Council funded project, "*Electronic Distribution Maps of Caribbean Fungi*" resulted in an enormous website (http://www.biodiversity.ac.psiweb.com/carimaps/index.htm) using data generated by the earlier Darwin Initiative project, "*Fungi of the Caribbean*", and involved members of the team of the present Darwin Initiative project. Resources from the British Council project were used synergistically with those of the present project, enabling team members to participate in many more international events than would have been possible through the funding of one project alone (see *Outputs, Outcomes and Dissemination* below). **Other Darwin Initiative work**. Synergistic use of funds from the present project and my other current Darwin Initiative project in Ukraine enabled Ms Tatiana Kryvomaz to participate in the myxomycete workshop in Cuba (November 2002), thereby providing a young mycologist with tropical experience. **BioNET-INTERNATIONAL**. Partly through the kind support of BioNET-INTERNATIONAL, Dr Julio Mena Portales

was able to attend BioNET-INTERNATIONAL's third global workshop in Pretoria (July 2002). This was followed up by an informal visit to Cuba by Dr Richard Smith of BioNET-INTERNATIONAL (December 2002). BioNET-INTERNATIONAL is now considering the possibility of moving the headquarters of CARINET, its Caribbean Locally Organized Operating Partnership, to Dr Mena Portales' institute in Havana. **Royal Botanic Garden, Edinburgh**. Mr Alan Bennell's successful, self-funded visit to Cuba to help deliver a workshop organized through the present project (November 2001), has been followed up by considerable discussions of how his skills might enhance development of visitor centres in *Flora y Fauna* protected areas. It is likely that he will be included in the proposal, currently in preparation, to extend the present project. **Mr Phil Lenton**. Through the kind help of the British Embassy in Havana, contact was established with Phil Lenton, who has a long history of organizing transport of donated materials to Cuba. Through collaboration with him, the scanning electron microscope and other equipment are being taken to Havana. **University of Aberdeen**. Dr Peter Green of the University of Aberdeen was contacted and a serendipitous meeting was arranged in Havana, the result of which was that he kindly donated a freeze drier for the INIFAT fungal culture collection. This is in the same shipment as the scanning electron microscope, and is believed currently to be on its way to Havana. By chance, Dr Green will travel to Uzbekistan in June 2003, and has kindly agreed to take a laptop for an Uzbek mycologist (a donation not strictly covered by any current Darwin Initiative project, but within the spirit of all of my current and previous projects). **Dr Steve Stephenson**. One of the participants of the myxomycete workshop organized for this project by Dr Camino (November 2002), was the US citizen Dr Steve Stephenson. He is organizing a follow-up workshop in the Great Smoky Mountains (USA, July 2003). The political differences between the USA and Cuba make it impossible for him to pay for Dr Camino to participate, but given that he is kindly helping to pay for Ms Tatiana Krivomaz (Ukraine Darwin Initiative project) to attend, I am hopeful that I will be able to find the modest costs of travel for Dr Camino, to reinforce her developing position within the international myxomycete community. **CABI Bioscience**. As noted already, the possibility is being explored of developing a Cuban extension to the CABI Bioscience fungal identification service.

6. Impact and Sustainability

- As already noted, the project has made sufficient political impact within Cuba for me to have had a meeting with Guillermo García, one of the four surviving Comandantes de la Revolución. In addition, *Flora y Fauna*'s magazine (issue 1 of 2002, copy to be supplied with final report) bore the Darwin Initiative logo on the front, and contained an article about the previous project "*Fungi of the Caribbean*". A further issue is expected to carry the Darwin Initiative logo before the end of the present project. A website is in place, though it is rudimentary, priority having been given to developing the much larger site for "*Electronic Distribution Maps of Caribbean Fungi*". Project activities have been presented at several international meetings detailed elsewhere in this report. Work on preparation of the draft management plans promised through this project has proceded well: I have seen drafts of several of the management plans. Exit strategies for the project primarily involve use of management plans to develop sustainable tourism near and perhaps on protected areas. *Flora y Fauna* has links with a Cuban government enterprise for sustainable tourism and, because it is located not far from the world heritage site of Trinidad, possibilities are being explored to begin small-scale visits by ecotourists to Alturas de Banao protected area.

7. Outputs, Outcomes and Dissemination

- The first seven rows in the following table relate to outputs listed in the agreement. Subsequent rows relate to additional, mostly unscheduled outputs. The list is not exhaustive. Every effort will be made to include omissions will be included in the final report next year.

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

Code No.	Quantity	Description
6A/B	9 people	Nature reserve staff from 3 protected areas trained in parataxonomists workshop, Mil Cumbres November 2002 [not 10 reserve staff in April 2002 as specified in agreement]
6A/B	12 people	Nature reserve staff trained in management plan production, Alturas de Banao, February 2003 [not unspecified number in April 2002 as specified in agreement] nb in reality the number of reserve staff trained under this scheme is higher because additional workshops were held in other locations, but I do not yet have the details from *Flora y Fauna*
8	7 days	Project leader in Cuba, June 2002 [not December 2002 as specified in agreement]
12B	>30,000 records	Database of fungal records enhanced [records from Cuba and beyond, not only from Alturas de Banao as specified in agreement]
13B		Species reference collection enhanced from fieldwork [no numbers specified in agreement; no numbers yet available from Cuba]
14A	2	Workshops organized for parataxonomists / reserve staff [as specified in agreement] nb in reality the number of workshops is higher, but I do not yet have the details from *Flora y Fauna*
14B	4 people	Cuban scientists participate in 4th Congreso Latinoamericano de Micología, Xalapa, Mexico May 2002 [not unspecified number in December 2002 as specified in agreement]
6A/B	2 people	Study time in the UK towards their higher doctoral degrees for Dr Camino & Dr Iglesias [additional unscheduled output]
8	8 days	Project leader in Cuba, February 2003 [additional unscheduled output]
11B	1	Website: *Electronic Distribution Maps of Caribbean Fungi* [additional unscheduled output]
14A	1	International myxomycete workshop organized in Cuba, November 2002 [additional unscheduled output]
14B	3	1 Cuban scientist participates in international workshop, Pretoria August 2002; 2 Cuban scientists participate in international congress, Oslo August 2002; 1 Cuban scientist participates in international congress, Brussels August 2002 [additional unscheduled outputs]
16A	1	Issue of *Flora y Fauna*'s magazine, bearing Darwin

		Initiative logo, and with article about earlier Darwin Initiative project [additional output; circulation unknown]
16A	1	Issue of *Revista del Jardín Botánico Nacional*, bearing Darwin Initiative logo [additional output; currently in press; circulation unknown]
20	£1,000	Ten donated laptop computers [additional output, nb this is also listed as output 23]
20	£20,000 [estimate]	Scanning electron microscope plus ancillary equipment (2 sputter coaters, pumps etc.), freeze drier, 50 boxes of computers, microscopes, scientific journals, printer paper etc. etc. [additional unscheduled output, donated, packed and waiting for shipment in April 2003, nb this is also listed as output 23]
20	£1,000 [estimate]	Laser printer and computers bought locally in Cuba [additional unscheduled output]
20	£500 [estimate]	Two donated laptop computers taken to Cuba by Dr Iglesias & Dr Camino, April 2003 [additional unscheduled output]
20	£250 [estimate]	Freezer purchased in Cuba for the *Jardín Botánico Nacional* herbarium for control of infestations. [additional unscheduled output]
20	£2,000 [estimated Darwin component of costs]	New Darwin building at La Sabina field station, Alturas de Banao protected area [additional unscheduled output; building completed April 2003]
21	1	New Darwin building at La Sabina field station, Alturas de Banao protected area [additional unscheduled output; building completed April 2003]
23	£1,000	Ten donated laptop computers [additional output, nb this is also listed as output 20]
23	£20,000 [estimate]	Scanning electron microscope plus ancillary equipment (2 sputter coaters, pumps etc.), freeze drier, 50 boxes of computers, microscopes, scientific journals, printer paper etc. etc. [additional unscheduled output, donated, packed and waiting for shipment in April 2003, nb this is also listed as output 20]
23	Cuban Pesos 50,000 [estimate]	Cuban contribution to construction costs for Darwin building at La Sabina field station Alturas de Banao protected area [additional unscheduled output]

- The outputs listed for this year in the agreement were all achieved, except for some very small details. There were, as listed above, many additional unscheduled outputs.

- Publications. Only the main publication of the year, a website providing more than 10,000 distribution maps of Caribbean fungi, is listed here. Information about other publications will be provided in the final report next year.

Table 2: Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
website	Electronic Distribution Maps of Caribbean Fungi		http://www.biodiversity.ac.psiweb.com/carimaps/index.htm	0

- **Dissemination**. *Flora y Fauna*'s magazine (issue 1 of 2002, copy to be supplied with final report) bore the Darwin Initiative logo on the front, and contained an article about the previous project "*Fungi of the Caribbean*". A further issue is expected to carry the Darwin Initiative logo before the end of the present project. A special issue of the *Revista del Jardín Botánico Nacional de Cuba* is being produced with the Darwin Initiative logo on the front. Both of these publications will continue to be produced after the end of the present project, using Cuban funding. The contribution of the present project has been to tide one publication (*Revista del Jardín Botánico de Havana*) over a difficult period and to enhance the other (*Flora y Fauna*'s magazine) by helping to pay the costs of colour printing.

8. Project Expenditure

- Please expand and complete Table 3.

Table 3: Project expenditure during the reporting period

Item	Budget	Expenditure
Salaries		
Minter		
Cubans		
Rent ,rates heating lighting etc		
Office administration costs		
Capital items/equipment		
Others		
Total		

- **Notes**. No changes to the budget were requested. Slight apparent overspend (figures contain modest expenditure from the financial year 2003-2004). It is believed that there was not variation in expenditure greater than +/- 10% of the budget.

9. Monitoring, Evaluation and Lessons

- I am monitoring project progress principally on the basis of numbers: of items of equipment delivered, of reserve staff trained, and of management plans drafted. In all these aspects the project progresses well. Problems in establishing a regional identification service are beyond the control of this project, but every effort has been made to compensate for them, by emphasizing strong improvements to infrastructure within Cuban mycology, good projection of Cuban mycological expertise on the world stage, a huge new website, and construction of the new Darwin Building at Alturas de Banao.
- **Lessons to learn**. More caution is necessary when committing important materials to transportation to Cuba organized by others. Nothing has been lost, but delays may have resulted in deterioration of donated materials during storage. Future work will certainly incorporate this greater caution.

10. D.W. Minter, 23 May 2003

Appendix 1. Copy of "log-frame" from original proposal

Project summary	Measurable indicators	Means of verification	Important assumptions
Goal To assist countries rich in biodiversity but poor in resources with the conservation of biological diversity and implementation of the Biodiversity Convention	Cuba helped with conservation of biological diversity and implementation of the Biodiversity Convention through equipment, training and new management plans; other Caribbean countries helped through the identification service	political feedback from Cuba evaluating long-term effect of project on Cuba's conservation work	Cuba and the UK maintain good relations; Darwin Initiative continues to receive funding
Purpose To equip Cuba with tools and skills necessary for conserving the country's biodiversity; to start running a Caribbean Fungal Identification Service	reserve employees trained; plans implemented; computerized data used for biodiversity conservation; effective operation of identification service	scientific feedback from Cuba with evaluation of effectiveness of programme, and from other Caribbean countries with evaluation of effectiveness of identification service	Cuban collaborators able to use provided resources effectively; issues of biosecurity can be resolved in running the identification service
Outputs Trained and equipped reserve employees; reserve management plans; computerized biodiversity data; scientific publications; fungal identifications	physical copies of plans; numbers of records keyboarded; copies of scientific publications; copies of identification reports	periodic reports to the Darwin Initiative from the Project Leader	equipment arrives intact; reserves able to cope with 220 volt computers (not a problem in the past); potential clients of the identification service can be reached, and respond; requests for identification work can be received in a timely fashion
Activities Organizing workshops to train Cuban participants; producing reserve management plans; keyboarding biodiversity data; using that data in scientific works; gathering, delivering and distributing donated equipment; starting the Caribbean Fungal Identification Service	participants; workshops; equipment for producing plans and computerizing data; identification service operational plans, project budget	lists of workshops participants; photos of workshops; statistics of keyboarded data; lists of donated equipment; photos of piles of boxes, publicity material for the identification service	donated equipment will be forthcoming, and can be transported and delivered