Darwin Initiative for the Survival of Species

Final Report

1. Darwin Project Information

Project Reference No.	***162/10/016***
Project title	***Biodiversity basics strengthening sustainability of the Yasuní Amazonian Rainforest, Ecuador***
Country	***Ecuador***
UK Contractor	***The Natural History Museum***
Partner Organisation	***Pontificia Universidad Católica del Ecuador (PUCE), Departamento de Ciencias Biológicas***
Darwin Grant Value	***£147,227***
Start/End date	***July 2001/ March 2005***
Project website	***none***
Author, date	***Nancy C. Garwood, 24 January 2008***

2. Project Background/Rationale

Location: Yasuní National Park (YNP) & Huaorani Ethnic Reserve (HER) is a MAB reserve in Ecuador's Amazonian Region. It is the largest tract of protected forest in Ecuador (> 10^6 ha) and a region of enormous diversity. It is also the sparsely populated but traditional homeland of the Huaorani people.

Background: Although YNP-HER is protected, it was opened to oil development about 15 years ago. Balancing economic development with conservation and sustainable use of this hyper-diverse forest has been challenging. Many lessons were learned from the environmentally and socially disastrous development of the oil industry north of the Rio Napo since the early sixties. These lessons, and pressure from international and local indigenous groups, led to the adoption of many environmentally less damaging practices (e.g. burying pipelines and limiting colonisation) in YNP-HER. Unfortunately, these have not prevented the Huaorani people, once the fierce and independent sole occupants of this vast region, from suffering enormous cultural upheaval. To preserve their cultural heritage and increase their economic well-being, the Huaorani seek to be recognised as official guardians of their traditional territory and to establish community-based ecotourism. This is not yet feasible because, although superb naturalists, most Huaorani lack the experience and skills to communicate effectively with government officials, NGO staff, local scientists and ecotourists to accomplish these goals. In addition, there are no biodiversity training tools (e.g. identification guides) for the region that will enable communication among or training for these groups. There is also a widening biodiversity knowledge gap between the experienced elders of the community and the younger generation of Huao.

Identification of Need and Partners: The need for the Darwin Initiative project was recognised during the course of a collaborative ecology study between Dr. Garwood, the Natural History Museum (NHM), and Dr. Valencia, Director of Herbario QCA, Pontificia Universidad Católica del Ecuador (PUCE). That study, which began in January 2000, was based at PUCE's Estación Cientifica Yasuní (ECY) in YNP-HER. Through its Director, Dr. Friedemann Koester, ECY has developed strong links with both local Huaorani communities and Repsol-YPF (the oil company working in the region). Further discussions identified how best a Darwin Initiative project could further conservation and sustainable development in the region and to assist the Huaorani with their goals. The proposal was prepared and submitted to the Darwin Initiative in Round 9 in November 2000. Success of the proposal was announced in March 2001. The start-date on the project was July 2001 and research activities began in September 2001. Finding Species (FS), a new US-based NGO with interests in Yasuní biodiversity, joined the project in later in 2001.

3. Project Summary

Purpose: Facilitate conservation and sustainable use of biodiversity within Ecuador's hyper-diverse Yasuní National Park & Huaorani Ethnic Reserve (YNP-HER) and increase the ability of the Huaorani people to participate in these activities by producing training tools and b) providing practical training.

Objectives (Outputs):
1) Huaorani trained locally in modern biodiversity concepts and working practices
2) Ecuadorians trained locally in traditional biodiversity concepts & knowledge, production of guides & educational material
3) Ecuadorian trained in UK on production of guides and project management
4) Multilingual identification guides produced for monitoring biodiversity, training, and community-based ecotourism
5) Multilingual biodiversity educational materials produced for Huaorani schools to link non-Huaorani teachers & concepts to traditional knowledge
6) Links among Huaorani, PUCE, Repsol-YPF & NHM strengthened and focussed on biodiversity issues

Logical Framework: See Appendix V. The framework and original objectives did not change substantially during the course of the project.

Modifications to operational plan: There has been no major changes in the operational plan, although the timetable for completion of activities has extended beyond the original planned dates. There were several minor changes to the original plan submitted, including the following.

a) Our counterpart at PUCE changed in January 2002 to Dr. Hugo Navarrete, the new Director of Herbario QCA, when Dr. Valenica took a leave of absence from PUCE to work at FUNDACYT.

b) A new American NGO, Finding Species, joined the project to provide professional quality photographs for the Yasuní tree book. (See http://www.findingspecies.org/)

c) We had planned to use an NHM-based design consultant to advise on the layout of the Yasuní tree book; however, the individual named in the proposal resigned from the NHM. As the selected Ecuadorian publisher, SIMBIOE, had very experienced design staff, it was decided that a UK-consultant was not needed. Design decisions were discussed between the project leader, host-country counterpart, the Darwin Fellow and SIMBIOE staff.

d) Our plan to train six Ecuadorian undergraduates was changed to training four students, as the pool of highly qualified students interested and prepared to undertake work in Yasuní with the Huaorani was more limited than we expected. Therefore, we offered additional training time to the selected students.

e) Our plan for an international workshop to be held at the Estación Cientifica Yasuní could not be arranged because of construction work at station. Therefore, after discussions with the DI, we helped organize in an international meeting on biodiversity and conservation in the Ecuadorian Amazon, held at Loja, Ecuador, in 2003.

f) Our plan for a second international workshop in Ecuador to coincide with the launch of Yasuní tree book was cancelled because of delays in publication of the book and departure of the NHM Project Leader from the UK.

g) Our initial plans to produce printed training materials for Huao participants to use during the early field work were replaced with structured oral exchanges, which were recorded. We quickly found that the Huao youth translating the songs and stories of their non-Spanish speaking elders had a limited Spanish vocabulary, especially of terms relevant to biodiversity. Therefore, the recordings of the elders had to be transcribed first into written Huao-tededo then translated into Spanish by experts. These activities also first identified the need for a Huao-Spanish glossary of relevant biodiversity terms, which was later compiled during translation of the recordings and descriptive text of Yasuní tree book into Spanish. This glossary will assist future biodiversity work with the Huaorani.

h) Finally, plans to publish the Yasuní tree book in Spanish, Huaorani and English by 2004 were overly optimistic for a number of reasons. First, it took about another year to complete the photographs for the book, as flowers and fruits of all species were not seen earlier. Second, as noted above (g), obtaining accurate information from the recordings of the Huao elders took considerably longer than expected as it had to be translated into Spanish by experts before parts were selected to be included in the book. Third, translating the descriptive text into Huao took much longer than expected, as a Spanish-Huao glossary of biodiversity and botanical terms had to be prepared from scratch. Fourth, extensive changes suggested by the publisher, SIMBIOE, including extensive revisions of the distribution maps, required considerably more time than expected. However, these tasks have now been mostly completed and publication is expected in 2008.

Articles under the Convention on Biological Diversity (CBD): As planned, the project contributed most heavily to **Articles 12** - Research and Training (40 %) and **17** - Exchange of Information (40 %), but also to **Articles 16** - Access to and Transfer of Technology (4 %), **13** - Public Education and Awareness (4 %), **8** - In-situ Conservation (4 %) and **10** - Sustainable Use of Components of Biological Diversity (4 %). (See Appendix I).

Success in meeting objectives: The project was successful in meeting its practical training objectives (objectives 1-3 above). In the short-term, it also strengthened links among the participating institutions (objective 6). In the long-term, the NHM-PUCE link will probably not develop further, as this link depended heavily on the time investment of the NHM project leader. (The NHM project leader resigned from her permanent position at the NHM at the end of 2004, but has continued to work with PUCE on this and other projects from her new position in the USA, in part on a 2-yr part-time consultancy from the NHM for this purpose.) Significant progress has been made on completing the identification guides and educational materials (objectives 4 and 5): publication of the Spanish version of the Yasuní tree book is expected shortly with Huao-tededo and English versions to follow. The project leader, counterpart at PUCE and the Darwin Fellow remain dedicated to fulfilling the remaining objectives of the project. In addition to the original objectives, the project also recorded the songs and stories of Huao elders concerning more than 250 tree species, had these transliterated into written Huao-tededo and then translated into Spanish. To our knowledge, this is the first time this type of information has been recorded from the Huaorani. As oral traditions are being rapidly lost, this will provide an invaluable resource for teaching and cultural continuity. The practical training gained and identification guides (when available) together will facilitate the conservation and sustainable use of biodiversity within Ecuador's hyper-diverse Yasuní region and increase the ability of the Huaorani people to participate in these activities, which was the overall purpose of the project.

4. Scientific, Training, and Technical Assessment

Training and capacity building activities.

Selection of participants: The **Darwin Fellow** (DF), Mr. Gorky Villa, was chosen in consultation with our host partner (PUCE). Although not named in the DI application, Mr. Villa was instrumental in designing the project proposal and was viewed by both NHM and PUCE as the ideal candidate. He also expressed keen interest in participating in the project if the application was successful, as he would benefit greatly by the training to be offered in production of identification guides, work with the local indigenous community, and project and student supervision. It is widely recognised by those working in the Ecuadorian Amazon that Mr. Villa is the one of the best individuals now working in Yasuní. For more than 5 years, he had been the field coordinator for the 50 ha Forest Dynamics Plot at Yasuní. This work included verifying the identification of more than 300,000 sterile stems of 1100 species on the FDP, databasing the plant identification information, visiting herbaria in the USA, and supervising the field team.

Advertisements for **students** were circulated through the Departamento de Ciencias Biológicas at PUCE. Students were interviewed and the two most qualified and interested in working on the project were selected in each of the first and second years. Given the pool of qualified and interested applicants, we choose to use only four rather than six students. The **Field Trainee** was selected from a group of botanical technicians currently working in Yasuní based on botanical knowledge, field skills, ability to work with others and an eagerness to work with the Huaoarani. **Huao participants** were selected from two groups: knowledgeable elders and literate younger Huao. Both men and women participated at both levels. Monthly participation rotated among those interested in the project, but elders were always paired with younger Huao who could act as interpreters.

Training methodologies: The primary method was on-the-job training, with each participant learning from others in the group. Activities at Yasuní focused around creating a nature trail at each Huao community. Creation of the nature trail was chosen as the primary training activity because it provided the appropriate opportunity for discussion of biodiversity information between all the trainees in a relaxed and natural situation for the Huao. The elder Huao were most knowledgeable about the local names, ecology and uses of the trees, but they spoke no Spanish (and did not read or write Huao-tededo). Young adult Huao, literate to some degree in both Spanish and Huao-tededo, were chosen as interpreters. Most of the stories and songs about each tree from the Huao elders were recorded on tape in Huao-tededo, followed by a brief oral

translation in Spanish. At each community, daily teams consisted of several elder and younger Huao, one or two students, the field assistant, and the Darwin Fellow. The younger Huao received training in biological field work, recording of data, and the importance of the knowledge held by their elders. The students and field trainee received training in working with the Huao, the importance of indigenous knowledge, and ecology and taxonomy of Amazonian trees. The younger Huao also learned the scientific naming of tree species and all Ecuadorian trainees learned the Huao names of trees and the basics of the Huao-tededo language. Further training in biodiversity techniques was provided for the Huaorani as specimens of reproductive trees along the nature trail were collected, photographed and pressed, and collection data entered into the collection database. (These photographs were used in the tree book and other guides; specimens and collection data enhanced herbaria, including the field herbarium in Yasuní, and other botanical databases in Ecuador.)

Students received additional training by working on a biodiversity project for their 'licenciatura' degree (similar in difficulty to a MSc degree). An additional training opportunity for the field trainee, who lacked university experience, was identified following discussions with him of ways we could enhance his ability to work in the biodiversity sector. He studied for a certificate in botany based on the botany course at PUCE, with books provided by the project and supervision from the Darwin Fellow and PUCE students. The Darwin Fellow received training from NHM staff, in particular the NHM project leader, in planning and designing the tree identification book and in training other project participants.

Training assessment. There were few formal assessments of training in the project. The field team of Darwin Fellow, students, and field trainee tried out several methods for working with the Huaorani to optimize sharing of biodiversity information until a successful routine was developed. Several preconceived plans were quickly discarded as unworkable. The final method chosen balanced the need for exchange of information with the need to maintain the interest of the Huaorani – both elders and youth. Additional field activities such as plant collecting and specimen preparation were repeated until interested and able Huaorani understood and successfully completed the activities. For students and the field trainee, frequent feedback and discussion were provided by the Darwin Fellow and project leader on ways to improve working arrangements with the Huaorani and on the qualities of materials produced for the project. The Darwin Fellow spent 4.5 months working in the herbarium at NHM with the project leader, learning how to prepare descriptions for the tree book and visual and written keys, and how to organize and present background information. Drafts of written material were reviewed and returned for revision. The project leader also spent about four months in Yasuní working with the project team, evaluating the success of training methods and recommending improvements.

Formal assessment was restricted to two areas. First, the student 'licenciatura' theses submitted to PUCE were reviewed by a faculty panel according to their standard procedures. In addition, the field trainee took an examination to become a certified "Parabotánico", which was prepared and evaluated by the Director of the Herbario QCA.

Research activities

The main research activity of the project was to improve the information base of species in Yasuní, and to present this information in an identification guide, *Common Trees of Yasuní / Arboles Comunes de Yasuní / Awe Anobainki Yasuní*. Using published and unpublished data on tree species abundance in Yasuní, the most common 250 species were selected to be included in the identification guide from among many thousands found in the Yasuní region. At the outset of the project, many species were only recognized to the level of morpho-species. During the project, the Darwin Fellow in particular identified many of these to taxonomic species or genus through extensive work in herbaria in the UK at the NHM (BM) and Kew (K), and in the US (F, MO) and Ecuador (QCA and QCNE) and by sending materials to international experts. The revised identifications of hundreds of species were included in the databases and specimen collections handed over to PUCE in 2005, as well in the included in text of the tree identification guide. Species descriptions were written for all 250 selected species in a consistent format, based on many herbarium collections from Yasuní and examination of species in other herbaria. Much of

this descriptive information, particularly on the vegetative characteristics necessary for the identification of sterile material, is presented here for the first time. Distribution data for each species within Ecuador and the Neotropics was collated from herbarium specimens, on-line databases such as *Tropicos*, and published references. Distribution within Yasuní, other ecological information and common names in Spanish and Huao-tededo were collected from published and unpublished sources, herbarium specimens and discussions with Huao participants. The significance of each species to the Huaorani community was recorded by interviews in the forest that were accompanied by songs and legends, using the training methods described above. Almost all of this information is new.

In addition, four undergraduate students undertook individual research projects to complete their 'licenciatura' degree as part of the Darwin project. Of these, two have submitted and been awarded their degree; one is expected to submit in 2008, and the fourth left the university for personal reasons before completing her thesis. Copies of the two completed theses are included in the appendices.

5. Project Impacts

Accomplishing the project's purpose: As noted above, the project purpose was to facilitate conservation and sustainable use of the Yasuní area and to increase the ability of the Huaorani to participate by providing practical training and producing training materials. In terms of training, the project was very successful, with all groups of trainees receiving more in-service training than originally planned (for instance, 874 person-days of training for the Huaorani rather than 720 days). The exchange of biodiversity information between the Huaorani and other project participants was the first such large-scale effort. Previous work with the Huaorani focused on more limited ethno-botanical knowledge, such as what is the particular use of a plant species (e.g. firewood, medicine, food) rather than what is the role of tree species in the biology of the forest and lives of the Huaorani. It was also a true exchange of information, in that western botanical knowledge of the tree species was introduced and discussed during sessions of each tree species in the field. The Darwin Fellow, field trainee and four students working on the project all received extensive practical experience in working in the field with the Huaorani, which promoted a greater appreciation and respect for the biodiversity knowledge of the Huao elders. Alas, the project did not seem to have an immediate and equal impact on the Huao youth involved with the project, with a few exceptions. However, the entire Huaorani community is becoming more active in discussions over the future of Yasuní (as seen in recent protests against expansion of oil exploration in the region, which have been well-documented in the Ecuadorian and international press), therefore we believe that the younger Huaorani who participated in the project will increasingly appreciate the knowledge of their elders and the training they received on the project. The oral recordings made of the elders' stories and songs, and their transliteration into written Huao-tedodo and translation into Spanish, will provide a cultural legacy to the Huaorani people that we had not initially considered in the project proposal. Ways to include this material in lessons for both Huaorani and other Ecuadorian students were discussed but not yet implemented. It is difficult to evaluate the full impact of the project because of the delay in publishing the Yasuní tree book, which will provide a crucial link between the Huaorani and other stakeholders in the Yasuní area. A full discussion of the project with the three participating Huaorani communities will occur when copies of the Huao-tededo version of the Yasuní tree book are presented to the participating communities, but these discussions await the publication of the book so that the physical evidence of the exchange of information can be seen and commented upon by all participants. Copies of the book will also be presented to the translators and Huaorani organizations such as ONHAE (Organization of the Huaorani Nation of the Ecuadorian Amazon) and AMWAE (Association of Huaorani Women of the Ecuadorian Amazon) for distribution to other Huaorani communities.

Contributing toward the Darwin Initiative's Goal: As noted in the logical framework (Appendix V), DI's main objective is to assist countries rich in biodiversity but poor in resources to meet their obligations under the Biodiversity Convention (CBD). As summarized in Appendix I, the primary

contributions of this project toward the CBD were in the areas of Research and training (40%) and Exchange of information (40%), although the latter is still not yet fully realized because of delays in publishing the Yasuní tree book. However, once available, it is expected to be widely adopted for training the diverse group of stakeholders involved in conservation biodiversity in Yasuní and to facilitate biodiversity inventories in the region. It will also provide a link between Huao communities and ecotourists by providing a plant guide accessible to both parties.

Improving local capacity for biodiversity work: Training was provided for the Darwin Fellow (Gorky Villa), a Field Trainee (Pablo Alvia), four undergraduate students (Janeth Santiana, Veronica Sandoya, Alejandra Moscosa, and Cristina Rivadeneira) and more than 60 Huao participants. The trained provided has improved the ability of the participating Huaorani to engage in future biodiversity training and has advanced the professional careers of the remaining participatnts.

Gorky Villa (MSc) has continued as an independent consultant in plant biodiversity in Ecuador. He is academically prepared to enter a PhD program in either taxonomy or ecology. He applied to George Washington University (Washington, DC) to work on the taxonomy of the *Brownea* complex, but acceptance into the program depends on improving his skills in English. (Unfortunately, the long periods he spent in the field working on this and other projects has made it difficult for him to enroll in formal classes to gain the necessary qualifications, although his written and spoken English has improved greatly since the beginning of the Darwin project.) He had received funding for the proposed research from the Center for Tropical Forest Science, in collaboration with Dr. Bente Klitgaard (NHM) and Dr. Patrick Herendeen (GWU).

Pablo Alvia has returned to work on the Forest Dynamics Plot at Yasuní, but has now been given extra responsibilities on the FDP because of the extra skills he gained on the Darwin Project. Although not a high school graduate, he passed the equivalent of introductory botany to gain a certificate as a 'parabotanico', gained extensive computer and photography skills, and learned how to work closely and respectfully with indigenous people.

Of the students, Janeth Santiana and Veronica Sandoya have both received their 'licenciatura' degree from PUCE and both have continued to work at PUCE on a variety of biodiversity projects. Janeth Santiana also attended the Organization for Tropical Studies field course in Costa Rica last year, furthering her knowledge of plant biodiversity. Alejandra Moscosa will submit her thesis this year and, in the meantime, has also continued to work on biodiversity projects at PUCE. The project leader has remained in contact with these three students, providing recommendations when necessary and talking with them during recent visits to Ecuador. Cristina Rivadeneira dropped out of the project and PUCE for personal reasons, but is reported to have eventually returned to school at another university in Ecuador.

A full list of Huaorani participants is included elsewhere (Appendix VI – D5). More individuals from Guiyero and Timpoca participated in the project than those from Dicaro, in part because the first two communities were closer to the research station than Dicaro, and were thus more familiar with interacting with the research station. Apa and Wepe Coba (both men) were the most important elders participating from Dicaro. Mingue Ahua, Okata Nihua and Tiwe Ahua (men) and Keme Nenquimo, Wentoke Boya, Yero Caiga, Aida Coba (Enomenaka) and Age (women) were the most important participating elders from Guiyero and Timpoca. (These two communities are treated together as the village split into two groups during the course of the project.)

The training provided for the Huaorani was intended as a first step toward more formal training in the biodiversity techniques needed to monitor, protect and sustainably use their territory and the broader Yasuní region, rather than an end-point in training. Only one of the more than sixty participants had worked previously with a biologist. Thus just spending long hours working together in the forest, discussing the native trees, was a major first step for most participants. Demonstrating to the younger Huaorani that the knowledge of their elders was of great interest to and respected by the other participants was an important aspect of the training. Whether this will encourage the younger Huaorani to learn this information before this knowledge dies out is unknown, but several individuals in the group were taking renewed interest in their cultural identify. Threatened expansion of oil exploration in the Yasuní region in 2005 has brought organized protests from both ONHAE and AMWAE, as well as a host of national and international organizations. There is still a critical need for the Huaorani to expand their training.

Collaboration: *UK-Ecuador*: The collaboration between NHM and PUCE was strengthened during the Darwin project, although this was heavily dependent on activities of the UK-NHM project leader. When the UK project leader left permanent employment with the NHM at the end of 2004, work continued on the project under a part-time consultancy for two years (2005-2006). During this period and through 2007, collaboration between the NHM, the project leader and other project partners continued much as before with the goal of completing project outputs. The project leader, now based at a US university, has initiated several new projects with PUCE but, as these do not require NHM expertise, facilities or collections, these projects have not included a UK component. However, PUCE is well placed to initiate new collaborations with the NHM should opportunities arise. *Within Ecuador*: Darwin sponsorship of the "II Congreso de Conservación de la Biodiversidad en los Andes y La Amazonia y IV Congreso Ecuatoriano de Botánica" improved links between many groups working in the Ecuadorian Amazon.

6. Project Outputs

Outputs are summarized in Appendix II.

Training outputs: Training aspects of the project were completed and often exceeded the amount of time originally planned. For example, the Huaorani received 874 person-days of training rather than 720 and more than 60 individuals received training than the minimum number of 24 expected. The Darwin Fellow received 30.5 months of training rather than 26 months, including 4.5 months training in the UK rather than 3 months. However, only four rather than six Ecuadorian undergraduate received training, decreasing the total person-months of training from 72 to 60, but students received on average more training than originally planned (15 months vs. 12 months).

Written training tools were not produced for the initial work with the Huaorani during this project, for reasons discussed above. Posters for Huaorani and other Ecuadorian schools were drafted but not printed and disseminated. Similarly, labels for the nature trails were drafted (an example is found in Appendix VI - E19), but not printed and placed on marked trees along the trails. We are discussing whether the posters and labels need to be revised and how best to complete these training tools.

Two of the four undergraduate students working on the project submitted and were awarded their licenciatura degree (Appendix VI – B1-B2). A third is expected to submit in 2008.

Physical outputs: Estimates of assets transferred to the host institution slightly exceeded expectations. Two nature trails were established and one enhanced as part of the oral training between Huaorani and Ecuadorian participants, an unexpected output that grew out of the need to develop standard oral training protocols. Lastly, significantly more financial resources (about £40,000) were contributed to the project from new sources than predicted.

Dissemination outputs: The numbers of oral scientific presentations, most with published abstracts, exceeded the number expected (see Appendix VI – D3-D5, E05-E06, E11-E12). There were likely additional presentations, such as theses presentations at PUCE prior to submission of the licenciaturas, that have been missed. The goal of organizing two international workshops at Yasuní was not achieved, in part because of construction at the research station and in part because of delays to completion of the project. However, the project assisted in organizing an international symposium on the Ecuadorian Amazon in 2003 (Appendix VI – E01-E04) in lieu of the first international workshop. One of three expected local workshops was organized. After the completion of the first workshop, which brought Huaorani from three communities together to discuss tree identification and ecology, it was decided that the two others would not be needed. Although no official press releases were prepared, the project received considerable attention in the Ecuadorian national press (Appendix VI – E07-E10) as a result of interviews in Yasuní following the symposium organized. The award was published in the NHM's Annual Report 2001-2002 (http://www.nhm.ac.uk/ about-us/corporate-information/annual-reports/report/ report2002/ text_only/fr_03.html). In addition, the NHM project leader wrote two small on-line popular articles

on the project (Appendix VI – D1-D2) to bring the project to the attention of the British and broader English-speaking public.

Research outputs: The project completed work on many of the expected research outputs, although there have been serious delays in publishing or disseminating others. The project specimen database (Appendix VI – C1) was presented to PUCE in 2005 and enhanced the databases of the Herbario QCA and the 50 ha Yasuní Forest Dynamics Plot. At the same time, more than 1000 collections were presented to three herbaria in Ecuador to enhance representation of Yasuní species in these herbaria. These two outputs were completely met. In addition, the NHM project leader spent most of the expected time in Ecuador on project work as planned. The small deficit in time not spent in Ecuador (3 weeks) was used to increase the training time of the Darwin Fellow during his visits to the NHM in London. Part-time work by the NHM project leader in Ecuador was not quantified, as it was sometimes difficult to assign time to the different on-going projects. A UK Design consultant was not used (as the original individual left the NHM at the beginning of the project). Design duties were shared among well-qualified project partners at PUCE, SIMBIOE, Finding Species and NHM: these significant contributions do not appear in the output table as they were mostly made by non-UK staff or carried out in the UK rather than in Ecuador.

The recordings made of the songs and stories of the Huao elders have been successfully transferred to CDs, transcribed into written Huao-tededo, and translated into Spanish. Several examples are included in the appendix (App. VI – E15). The CDs and text files were presented to PUCE in 2005. An enormous effort went into producing this material, not counting the time spent in the forest making the original recordings, as that was the only way this information could be studied and selections made for inclusion in the Yasuní tree book as planned. The time required to do this has caused a serious delay in completion of the tree book itself. However, the information recorded, transcribed and translated is a unique but unexpected contribution from the project. Most importantly, it provides a cultural legacy that can be passed from the Huao elders to younger generations who are losing much of their traditional knowledge. In addition, It will be a resource for future ethno-botanical study. Lastly, it also provides a treasure-trove of stories and songs that can be incorporated into classroom studies for Huaorani and other Ecuadorian schools. Project participants are currently discussing ways to accomplish this.

A glossary of biodiversity terms in Huao-tededo, Spanish and English was completed in April 2007. Data is currently in an Excel file (Appendix VI – C2). We are also discussing the best way to disseminate this valuable research and teaching resource.

The three photo-guides or "fotoguias" were completed (Appendix VI – E16, E17, E18). Revised versions will be soon be posted on the "Rapid Color Guides" web cite of Dr. Robin Foster (Field Museum, Chicago) (http://fm2.fieldmuseum.org/plantguides/rcg_intro.asp?zone= tropical &guidetype=plant). The format of the photo-guides was modelled on that of Foster's guides from the outset. Similar guides to other plant groups at Yasuní, including palms, lianas, epiphytes and other conspicuous plants are already available on the web site, so making these guides available there is both logical and practical. Anyone wanting to use the guides could download and print them when needed. Discussions to expand and improve these guides has begun.

The last research output, *Common Trees of Yasuní / Arboles Comunes de Yasuní / Awe Anobainki Yasuní,* is nearing completion. Material completed or in draft format is included elsewhere (Appendix VI – Part A). The first colour proof of the book was made available by SIMBIOE in August 2005 (App. VI - A1), but has since been updated and improved. The first proof lacks complete sets photographs for some species, but these have since been completed and incorporated. The Spanish text for the descriptions has been revised several times since 2005, most recently in June 2007 (App. VI - A2). At that time the English translation of the text was also revised (App. VI - A2); the Huao-tededo-translation has not been updated since February 2007 (App. VI - A2). The Illustrated Glossary for the book, produced in Adobe Illustrator™, was completed in April 2007 with parts labelled in Spanish and Huao-tededo (pdf files are provided in App. VI - A3). Parts have been translated into English for incorporation into the English version of the book (App VI - A3). The Visual Key/ Clave Visual, also produced in Adobe Illustrator™, was completed in May 2007 (pdf files are provided in App. VI – A4). Symbols in the Visual Key link to

symbols at the top of page of each species descriptions, and parts of the Visual Key are repeated in front of the four major sections of the book. The dichotomous written key to the 250 species included in the book has been completed in both Spanish and English (App VI – A5). English drafts of the Introduction (App VI – A6) and Prologue (App VI – A7) were revised in April 2007. The index to scientific names and common names in Spanish, Huao-tededo and other indigenous languages was completed in June 2007 (App. VI – A8). In October 2007, the distribution maps of all species was updated according to the recommendations of SIMBIOE. Finally, Dr. Elizabeth Losos (CEO, Organization for Tropical Studies, USA) and Dr. Renato Valencia (Professor, PUCE, Ecuador) have agreed to write the forward to this important book. Thus, while not yet published, we have made very significant progress toward publication in the last two years and can reasonably expect publication in 2008. The launch of the Yasuní tree book in Ecuador will be accompanied by press releases and distribution of the Huao version of the book to the original participating Huaorani communities, thus completing the exchange of biodiversity information between participants.

7. Project Expenditure

Project expenditure during the reporting period

Item	Original Budget	*Expenditure*	*Balance* [Change **> 10%**]
Rent, rates, heating, overheads etc			
Office costs (e.g. postage, telephone, stationery, consumables)			
Travel & subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others :audit			
Salaries (1 Darwin Fellow, 4 students, 1 field technician and many Huaorani trainees)*			
Total			

*All salaries were for Ecuadorians: 1 Darwin Fellow, 4 students, 1 field trainee, 1 financial administrator, 2 translators, occasional part-time help, and many Huaorani (> 60 individuals).

Variation in expenditure where this is +/- 10% of the budget: All major changes between item categories were discussed with and approved by the Darwin Initiative during the course of the project. Funds from under-spent items balanced overspent items. Under-spent items: *Conferences*: Two conferences were originally planned. The second, to coincide with the completion of the project and launch of the Yasuní tree book, was cancelled because of delays in completing the tree book. *Printing*: Some printing costs were transferred to the publisher SIMBIOE. *Salaries:* We employed only four of the six planned undergraduates. Over-spent items: *Capital/equipment*: Computers, cameras and other equipment were more expensive than expected. *Office costs and other consumables*: These items, including a major upgrade to the laboratory space used, were more expensive than expected. *Audits*: At the start of the project, Darwin-required audits were done at no extra cost to the project or NHM. Starting in 2005, NHM was charged for audits, and these costs were passed on to the project.

8. Project Operation and Partnerships

Local Partners: a) As planned, PUCE was the main local partner, sharing facilities and expertise with the Darwin project in Quito and in Yasuní. PUCE is a leader within Ecuador in biodiversity inventories, floristics, conservation, endangered species and ecology. Project planning and implementation were discussed extensively with PUCE project counter-part, Dr. Navarrete, and the Director of the research station, Dr. Koester, during preparation of the proposal and throughout the project, as were practical solutions to the many logistical problems encountered.

b) As planned, we worked closely with several Huaorani communities near the research station (Guiyero, Timpoca and Dicaro) where the field work was focused, signing agreements with the communities to participate in the project. Original plans for a limited number of Huaorani participants to work extensively with us were changed because the communities wanted broader participation.

c) We also employed two local individuals from Puyo, Delfín Andi and Nancy Guinquita, to translate oral Huao-tededo songs and stories into Spanish and the Spanish text of the Yasuní tree book into Huao-tededo. These individuals were associated with ONHAE (Organization of the Huaorani Nation of the Ecuadorian Amazon), which has its headquarters in Puyo. Thus, although we did not have a formal agreement with ONHAE itself, our activities were well-known to the organization.

d) We planned to find a local publisher for the Yasuní tree book, but none had yet been identified when the proposal was submitted. We were very pleased and fortunate to engage SIMBIOE, which is a leading Ecuadorian publisher of biodiversity and conservation books. They contributed expertise and fund-raising abilities toward publication of the Yasuní tree book and made many excellent suggestions on composing the book.

e) The oil company Repsol-YPF, which controls the oil concession and access to the portion of Yasuní in which the project worked, provided considerable in-kind contributions toward the logistics of working in Yasuní.

f) To our knowledge, the only other Darwin project in Ecuador was located in the Galapagos Island and we had no direct contact with it.

g) We collaborated closely with other projects at Yasuní, particularly the 50 ha Yasuní Forest Dynamics Plot (an international collaboration between PUCE, Aarhus University, Field Museum, and Center for Tropical Forest Science) and the Yasuní Phenology Project (an international collaboration between the NHM, PUCE, Aberdeen University and Smithsonian Tropical Research Institute). Species identifications and ecological information were shared among projects.

International Partners: Finding Species (FS), a new US-based NGO with interests in Yasuní biodiversity (http://www.findingspecies.org/), joined the project in 2001. FS has provided professional quality photographs for the Yasuní tree book, greatly enhancing the quality of the images.

9. Monitoring and Evaluation, Lesson learning

Monitoring and evaluation: Progress toward project outputs was evaluated by: a) once or twice yearly site visits of NHM project leader to Ecuador; b) once yearly visits of the Darwin Fellow to London; c) monthly summaries of activities sent to the NHM project leader from Darwin Fellow in the initial stages of project, with less frequent summaries sent in later stages of the project; d) oral discussion with Huaorani participants; and e) development of project outputs, such as databases, collections, written descriptions of tree species, and the Huaorani-Spanish glossary. Progress was assessed through the NHM's internal project assessment system, which is linked to staff reporting and forward job plans, and by submission and review of Darwin Initiative Half-Year and Annual Reports. Success of student licenciatura thesis projects was determined by submission of the thesis and passage by a PUCE faculty committee. Success of other written project outputs will be measured by number of copies published and/or disseminated and reviews. Success of other types of outputs was measured by comparison of achieved number of outputs compared to expected number.

All expenditure was controlled by the NHM project leader, subject to the NHM's financial control procedures and Darwin guidelines, and monitored by the Botany Departmental Administrator. Financial transactions in Ecuador were controlled by the Darwin Fellow, under approval of the main partner at PUCE. A part-time financial administrator assisted them at PUCE and submitted monthly financial statements to the Botany Departmental Administrator. Accounts were audited on a regular basis, both in Ecuador and in the UK. Financial expenditure was assessed through the NHM's internal financial assessment system and by submission and review of Darwin Initiative Annual Reports and Quarterly Grant Claim Forms.

Problems: There were many small logistical problems that delayed progress on the project. These included minor medical problems of the project leader and Darwin Fellow, prior commitments of the Darwin Fellow (made while awaiting announcement of the proposal award), lost field work time caused by natural disasters such as volcanic irruptions or flooding, and social problems among one of the Huaorani communities which caused it to split into two. These logistical problems were overcome by patience, with project activities rescheduled as soon as possible.

A more serious problem was that we underestimated the amount of effort that would be needed to finalize species identifications and accumulate the information to prepare the Yasuní tree book. A large number of even the most common species at Yasuní were identified only to morpho-species at the beginning of the project, hence much herbarium work and consultation with taxonomic experts were necessary. Full descriptions were not available for most species, particularly of the vegetative characters needed to distinguish between species in standard inventory work (when reproductive characters are often not available); therefore, this information had to be measured on available specimens. For the section on Huaorani knowledge, transcribing the songs and stories from the recordings into written Huao-tededo then translating this into Spanish also required much unanticipated time. We had thought that, by having younger Huao translate the songs and stories of their elders directly into Spanish, this would speed the transfer of this information between cultures. However, once it was discovered that the younger Huao said very little in Spanish after long discourses of the elders in Huao-tededo, it was realized that full transcription and translation would be necessary. Once translated, the information could be studied and decisions made about which material to include in the book itself. Obtaining photographs of the flowers or fruits of several species also took at least a year longer than we anticipated as some species were simply not found in reproductive condition earlier. Lastly, the project leader underestimated the amount of training that the Darwin Fellow himself would need to write the species accounts, including not only the taxonomic descriptions but summaries of the ecology and distribution of each species, to prepare the visual key and dichotomous written key, and to learn new computer programs to produce maps of species distributions, visual key and other icons used throughout the book. Once these skills were mastered, the Darwin Fellow used his extensive practical field and herbarium knowledge to prepare the species account to a high standard. Again, the solution here was and is patience.

10. Actions taken in response to annual report reviews (if applicable)

The reviews were generally supportive of the project in general and understanding of the causes of the delays. They usually also supported our priorities for completing the work, agreed with the importance of the participatory approach of sharing knowledge between the indigenous Huaorani and 'western' participants, and concurred with our assessment of the unique value of the songs and stories recorded in the field from the participating Huaorani elders. Their major critique was that our 'exit strategy' was not well developed, although they did not make specific suggestions on how to improve this. We have not yet developed a specific exit strategy because we are still struggling to complete some of the major outputs, such as the Yasuní tree book. However, project partners have continued to work together well past the official end date of the project (March 2005) to achieve objectives and are discussing ways to carry the work forward after the official outputs are achieved.

11. Darwin Identity

The Darwin logo was used on all presentations, publications, and other promotional materials (for examples see Appendix VI -E02, E05 and E06]). The logo was also used on the back of T-shirts distributed at the local tree workshop attended by participating Huaorani (although only the fronts of the T-shirts are visible in the poster in Appendix VI - E05-E06). "Darwin Initiative" also appeared in the titles of presentations, such as "Intercambio de conocimientos para proteger la biodiversidad de Yasuní, un proyecto de iniciativa Darwin" (Appendix VI - E04, abstract, Gorky Villa et al. 2003]). Articles in one of Ecuador's leading newspapers, *El Commerico*, described various aspects of the project and also acknowledged support from the Darwin Initiative (Appendix VI - E07, E10]. Articles in *Plant Cuttings*, the on-line newsletter of the Botany Department [NHM] acknowledged the role of the Darwin Initiative in the project (see Appendix VI - D1, D2). Thus, the general and scientific public in both Ecuador and the UK were made of aware of the role of the Darwin Initiative in this project. The Darwin Fellow, Gorky Villa, used this title in presentations, correspondence and on his C.V.

12. Leverage

The project leveraged significant funding from participating partners from the outset when it was first proposed and submitted to the Darwin Initiative. The NHM and PUCE pledged and contributed approximately £55,000 toward the project from salaries and facility and vehicle maintenance. In addition, about £12,000 was pledged and contributed toward project costs by travel funds, shared equipment and use of photographs taken on other projects at Yasuní lead by the NHM project leader.

The project also leveraged additional funding after it started. Finding Species, an American NGO, contributed use of professional quality photographs to the Yasuní tree book and SIMBIOE, an Ecuadorian biodiversity publisher contributed to publications costs. Together these are valued at about £25,000.

In addition, the Darwin Fellow Gorky Villa contributed about an additional year of work on the project without pay and the NHM Project leader Nancy Garwood contributed at least two additional months of work without pay (after completing paid consultancy work for the NHM). Together these are valued at about £XXXX.

Lastly, student Alejandra Moscosa received funding (about $3000) from the Center for Tropical Forest Science to visit herbaria in the US and carry out further research on Myrtaceae on the 50 ha Yasuni Forest Dynamics Plot.

Our Ecuadorian counterpart at PUCE, Dr. Hugo Navarrete, who became Director of Herbario QCA soon after the start of the project, quickly saw the benefits of collaborative efforts. He initiated a major fund-raising effort within Ecuador to further biodiversity studies and conservation based on new tax laws that allowed companies to donate part of their tax to certain Ecuadorian institutions such as PUCE instead of the government in exchange for certain benefits. This funding has supported other on-going biodiversity work and initiated new projects, and is one potential mechanism for carrying forward additional work stimulated by the Darwin project.

13. Sustainability and Legacy

Training received by all participants will be a lasting contribution to conservation and sustainable use of biodiversity. The Darwin Fellow, four students and the field trainee are continuing to work in this field. The Darwin Fellow and students also hope to obtain higher degrees to improve their capacity to work in the biodiversity arena. The NHM Project Leader (now working in the US) is developing new collaborative projects with the Ecuadorian counterpart of the Darwin Initiative project (the Director of the Herbario QCA at PUCE), continuing established projects with others at PUCE, and maintaining contact with the Director of the Estación Cienfica Yasuní, the Darwin Fellow, students, and Field Trainee. The Project Leader has written letters of

recommendation for students to attend international courses (such as those offered by the Organization for Tropical Studies) and other educational opportunities and will continue to do so whenever possible.

Improvements in identification and additional collections of Yasuní tree species made during the project will also have a lasting impact on biodiversity work in the region.

The book *Common Trees of Yasuní / Arboles Comunes de Yasuní / Awe Anobainki Yasuní,* once published, will be an important and enduring legacy of the project. Published in Spanish, Huao-tededo, and English, it will promote biodiversity training of the diverse stakeholders of Yasuní. It will also provide a vital link between western biodiversity knowledge and Huaorani biodiversity knowledge, as well as between elder and younger Huaorani. The NHM Project Leader (now working in the US), the Ecuadorian counterpart of the Darwin Initiative project, and the Darwin Fellow are working together to complete the few remaining parts of the book so that it can be published in 2008.

The immediate legacy of the project would have been achieved sooner if the project outputs, such as the photoguides, glossary of Huaorani-Spanish biodiversity terms, and signage on the nature trails were disseminated in a more timely fashion. However, a lasting legacy of the project can still be achieved with publication and dissemination of these outputs in the near future. The major effort has been focused on completing the 500+ page Yasuní tree book rather than on the smaller outputs. After the book is published, we will review progress on other outputs and determine which can be disseminated quickly and which require further revision. In particular, we hope to secure funding to make the recorded Huao songs and stories about biodiversity better known, such as providing selected passages and songs for use in classrooms in the Huao communities as well as elsewhere in Ecuador. We do not see this Final Report to the Darwin Initiative as the end of our activities on the work begun here.

14. Value for money

In terms of the training received by all participants, this project delivered value for money. However, until the Yasuní tree book is finally published in Spanish, Huao-tededo and English, it is difficult to assess the other long-term benefits of the project in terms of conservation and sustainable use of biodiversity in the Yasuní region. There is currently nothing remotely similar to the Yasuní tree book available for all of the Ecuadorian Amazon, in any language. If we can publish the book in 2008, which seems highly likely given that it is almost complete, then the project would have delivered the majority of its objectives and could then be considered overall as excellent value for money even with the delays.

15. Appendix I: Project Contribution to Articles under the Convention on Biological Diversity (CBD)

Project Contribution to Articles under the Convention on Biological Diversity		
Article No./Title	**Project %**	**Article Description**
6. General Measures for Conservation & Sustainable Use	0	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	4	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	4	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation	0	Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	4	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures	0	Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	40	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness	4	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.

14. Impact Assessment and Minimizing Adverse Impacts	0	Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources	0	Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology	4	Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information	40	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol	0	Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Total %	**100%**	**Check % = total 100**

16. Appendix II Outputs

Please quantify and briefly describe all project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date	***Detail*** **[outputs expected in original proposal]**
Training Outputs		
1a	Number of people to submit PhD thesis	*0* [none expected]
1b	Number of PhD qualifications obtained	*0* [none expected]
2	Number of Masters qualifications obtained	*2 'Licenciaturas' from PUCE awarded, 1 'Licenciatura' to be submitted in 2008 (These are undergraduate theses at PUCE, similar in difficulty to MSc)* [none expected]
3	Number of other qualifications obtained	*1 (Field trainee received certificate from PUCE as "Parabotánico" after passing examination in December 2003)* [none expected]
4a	Number of undergraduate students receiving training	*4 students* [six expected]
4b	Number of training weeks provided to undergraduate students	*60 months total* *15 months/student on average* [72 months total expected] [per student: 12 months expected]
4c	Number of postgraduate students receiving training (not 1-3 above)	*0* [none expected]
4d	Number of training weeks for postgraduate students	*0* [none expected]
5	Number of people receiving other forms of **long-term** (>1yr) training not leading to formal qualification(i.e not categories 1-4 above)	*2 people* *Darwin Fellow (26 months in Ecuador and 4.5 months in UK)* *Field Trainee (17 months)* [DF, 23 months expected in Ecuador] [DF, 3 months expected in UK] [FT, 12 months expected]
6a	Number of people receiving other forms of **short-term** education/training (i.e not categories 1-5 above)	*> 65 Huaorani participants* [minimum of 24 expected]
6b	Number of training weeks not leading to formal qualification	*874 person-days for Huaorani participants* [720 person-days expected]
7	Number of types of training materials produced for use by host country(s)	*2 oral methods of training for Huaorani developed (field discussions of trees between Huaorani and other Darwin participants; local workshop to share knowledge between Huaorani communities)* *2 kinds in preparation (posters for use in schools; labels for nature trails)* [4 kinds expected]
Research Outputs		
8	Number of weeks spent by UK project staff on project work in host country(s)	*15 weeks full-time by NHM project leader to Ecuador (including 2 weeks after 3rd Annual Report submitted) to train DF, students and field trainee; 2 additional weeks of training provided in US by NHM project leader for DF*

Code	Total to date	***Detail*** **[outputs expected in original proposal]**
		(after 3rd Annual Report); part-time efforts not quantified [18 weeks full-time expected by NHM project leader, plus 9 weeks part-time] *0 weeks from UK Design Consultant [duties shared among Ecuadorian publisher [SIMBIOE], host counter-part, and NHM project leader* [9 weeks expected by UK Design Consultant]
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	*0* [none expected]
10	Number of formal documents produced to assist work related to species identification, classification and recording.	*1 tree identification book in 3 separate languages editions (nearly completed)* [1 tree identification book expected in 3 languages] *3 photo-guides (completed but not disseminated)* [3 photo-guides expected] *1 Huao-Spanish-English glossary (nearly completed)* [none expected] *35 tapes of Huao stories and songs recorded, copied to CDs; transcribed in Huao-tededo and translated into Spanish* [none expected]
11a	Number of papers published or accepted for publication in peer reviewed journals	*0* [none expected]
11b	Number of papers published or accepted for publication elsewhere	*0* [none expected]
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	*0* [none expected]
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	*2 databases enhanced (Herbario QCA and Yasuni Forest Dynamics Plot)* [2 expected]
13a	Number of species reference collections established and handed over to host country(s)	*0* [none expected]
13b	Number of species reference collections enhanced and handed over to host country(s)	*3 collections (Herbario QCA, Herbario Nacional, Herbario ECYasuni) enhanced, by more than 1000 specimens* [3 expected]

Dissemination Outputs		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	1 symposium organized (*Symposium on Amazonian biodiversity co-organized, August 2003, at Ecuadorian Botanical Congress)* [2 international workshops expected] *1 Local workshop organized to promote interchange of biodiversity information between Huaorani communities* [3 local workshops expected]
14b	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated.	*6 conferences attended* *14 Presentations given on biodiversity work at Yasuni given at international and national meetings* *11 abstracts published* [12 presentations expected]
15a	Number of national press releases or publicity articles in host country(s)	*0 press releases prepared* *3 newspaper articles on project published in national press after interviews of project participants in Yasuni* [2 expected]
15b	Number of local press releases or publicity articles in host country(s)	*0* [none expected]
15c	Number of national press releases or publicity articles in UK	*0 press releases prepared* *2 on-line newsletter articles published on project* [2 expected]
15d	Number of local press releases or publicity articles in UK	*0* [none expected]
16a	Number of issues of newsletters produced in the host country(s)	*0* [none expected]
16b	Estimated circulation of each newsletter in the host country(s)	*0* [none expected]
16c	Estimated circulation of each newsletter in the UK	*0* [none expected]
17a	Number of dissemination networks established	*0* [none expected]
17b	Number of dissemination networks enhanced or extended	*0* [none expected]
18a	Number of national TV programmes/features in host country(s)	*0* [none expected]
18b	Number of national TV programme/features in the UK	*0* [none expected]
18c	Number of local TV programme/features in host country	*0* [none expected]
18d	Number of local TV programme features in the UK	*0* [none expected]
19a	Number of national radio interviews/features in host country(s)	*0* [none expected]
19b	Number of national radio interviews/features in the UK	*0* [none expected]
19c	Number of local radio interviews/features in host country (s)	*0* [none expected]
19d	Number of local radio interviews/features in the UK	*0* [none expected]
Physical Outputs		
20	Estimated value (£s) of physical assets handed over to host country(s)	*approx. £ 10,000 (including computer equipment, cameras, and renovated laboratory space with desks and file cabinets)* [£8,333 expected]

21	Number of permanent educational/training/research facilities or organisation established	*0* [none expected]
22	Number of permanent field plots established	*2 nature trails established, 1 nature trail enhanced* [none expected]
23	Value of additional resources raised for project	*approx. £53,000 received from NHM and PUCE from salary and other in-kind contributions* [£52,914 expected in salary and other in-kind contributions from NHM and PUCE] *approx. £2,000 contributed [after considerable delay, this was accomplished by 2006, allowing email communication as well]* [£2000 expected *from Repsol-YPF toward installation of telephone at Yasuni Research Station*] *approx. £12,000 received from other on-going projects at Yasuni from NERC, Mellon and STRI grants to UK project leader for use of photographs, travel expenses, etc.* [about £12,000 expected] *approx. £25,000 received as edited photographs from Finding Species and contributions toward publication from SIMBIOE* [not expected] *approx. £XXXX received from extra unpaid work of Darwin Fellow and UK Project Leader* [not expected] approx. *£1500 from CTFS for further reseach and training of student Alejandra Moscosa* [not expected]

17. Appendix III: Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications Database that is currently being compiled.

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

Type * (e.g. journals, manual, CDs)	**Detail** (title, author, year)	**Publishers** (name, city)	**Available from** (e.g. contact address, website) [CD this report]	**Cost £**
*7 conference abstracts	*In **Libros de Resumes. II Congreso de Conservacón de la Biodiversidad en Los Andes Y La Amazonía y IV Congreso Ecuatoriano de Botánico**. 25-30 Agosto, 2003. Loja, Ecuador. L.M. Romero Fernández, H. Lucero Mosquera, Z. Aguirre Mendoza, S. Torrachhi Carasco, J. Pl Suárez Chacón, R. Bussman. 328 pp. 2003* *1) Intercambio de concocimiento para proteger la biodiversidad de Yasuní, un proyecto de inciativa Darwin. (poster; p. 98) G.Villa, H. Navarrete, A. Moscoso, J. Santiana, V. Sandoya, C. Rivadeneira, P. Alvia & N. Garwood.* 2) *Bombacaceae en el Parque Nacional Yasuní, un estudio a nivel taxonónico. (p. 124) J. Santiana* *3) El género Calyptrantes (Myrtaceae) en el Eciadpr. Un vistazo a su taxonomía. (poster; p. 132) M.A. Moscosa Estrella.* *Other related Yasuní studies (presentation funded by DI project):* *4)Resultados preliminares de la estructura y composición de especies de árboles > 10 cm de una parcela permanente de 50 ha en el Parque Nacional Yasuní. (p. 178) G. Villa, C. Hernández, R. Foster, R. Condit, E. Losos, R. Valencia, K. Romoleruox, & H. Baslev.* *5) Estacionalidad de la reproducción de plantas de un bosque lluvioso en el Parque Nacional Yasuní. (poster; p. 180). N. C Garwood, V. Persson, S.J. Wright, R. Valencia, & D.F. R. P. Burslem.* *6) Estudio de floración a nivel de comunidad en un bosque de tierra firme de la Amazonía Ecuatoriana. (p. 182) Z. Aguilar Mena.* *7) Influencia del suelo y la luz en la germinación de seis especies de Cecropia de la Amazonía Ecuatoriana. (p. 185) P. Barriga Albuja*	Editorial de la Universdad de Técnica Particular de Loja (Ecuador) Tel: 593-7-570-275 (Ecuador) ISBN 9978-09-036-3	[Appendix VI-E01]	(free to participants of Congreso)
*1 abstract	*Biodiversity basics strengthening sustainability of the Yasuní Amazonian rainforest, Ecuador. N. C. Garwood, G. Villa., & H. Navarrete. (poster P/04; p. 65).* In: *Programme and Abstracts: Biotic Interactions in the tropics: A special symposium of the British Ecological Society and the Annual Meeting of the Assocaiton for Tropical Biology and Conservation, University of Aberdeen, 7-10 July 2003*	British Ecological Society & Association for Tropical Biology and Conservation	[Appendix VI – E11]	(free to participants)
*1 abstract	*Biodiversity basics strengthening sustainability of the Yasuní Amazonian rainforest, Ecuador. N. C.*	Systematics Association	[Appendix VI-E11]	(free to participants)

	Garwood, G. Villa., H. Navarrete & M. Bass. (poster 25; p. 62) In*:: Programme and Abstracts. Systematics: Fourth /Biennial Conference of the Systamatics Assocation, Trinity College, Dublin, Ireland 18-22 August 2003.*			
**1 booklet*	*Memoria del Evento: Conservación y Uso de la Biodiversidad en la Cuenca Amazónica. 2003. R. Torres Galarza (editor), 53 pp.*	ECORAE/GTZ, Quito	[Appendix VI – E02]	(free to participants)
**1 newspaper article*	*Los 250 árboles más usados por los huaorani se catalogaron en el Yasuní, anon., 2003 (December).*	El Comerico, Quito	http://www.elcomercio.com/noticias.asp?noid=81832&hl=true&f=12/23/2003 [Appendix VI - E07-E08]	free
**1 newspaper article*	*El Yasuní conserva su notable diversidad, F. Vega, 2003 (November).*	El Comerico, Quito	http://www.elcomercio.com/noticias.asp?noid=79899&hl=true&f=11/30/2003 [Appendix VI – E09]	free
**1 newspaper article*	*Pablo Alvia escarba el bosque desde niño, anon., 2003 (December).*	El Comerico, Quito	http://www.elcomercio.com/noticias.asp?noid=81310&hl=true&f=12/17/2003 [Appendix VI – E10]	free
Notice	*Nuevo projecto de la Estación Científica Yasuní. Anon. (Gorky Villa). 2002 (April)*	Universidad Nacional de Loja, Facultad de Ciencias Agrícola, Departamento de Botánica y Ecología, Casilla "11-01-249", Loja, Ecuador	FunBotánica. Boletin 10, p. 7	unknown (free to members)
**Newsletter article*	Yasuní Darwin Initiative Project Launched. *Plant Cuttings: Research,* Issue 8 N. Garwood. 2002 (July).	*NHM, London*	http://www.nhm.ac.uk/research-curation/departments/botany/news-events/newsletter/archive/issue8/research/ [Appendix VI - D1]	free on-line
**Newsletter article*	Yasuni Revisited. *Plant Cuttings: Research*, Issue 9 N. Garwood. 2003 (January).	*NHM, London*	http://www.nhm.ac.uk/research-curation/departments/botany/news-events/newsletter/archive/issue9/trainingandfieldwork/ [Appendix VI - D2]	free on-line
**1 abstract*	*Diversity and structure of vascular epiphytes in different habitats in the Ecuadorian Amazon, Veronica Sandoya, 2004, Annual Meeting of the Association for Tropical Biology and Conservation, Miami, 2004 (July)*	*ATBC*	http://darwin.fiu.edu/CEToB/ATBC2004/Abstracts.html [Appendix VI -	free on-line

			D3]	
*book	*Common Trees of Yasuni /Arboles Comunes de Yasuni*	**in preparation** *SIMBIOE, Quito*	[Appendix VI – A1 – A8]	-
*glossary	*Biodiversity glossary: Huao-tededo, Spanish, English*	**in preparation**	[Appendix VI – C2]	-
*photoguide	*Arboles más comunes de la familia Bombacaceae de Ecuador (fotoguia)*	**	[Appendix VI – E16]	
*photoguide	*Frutos y Semillas >5cm de PARQUE NACIONAL YASUNÍ – Orellana, Ecuador (fotoguia)*	**	[Appendix VI – E17]	
*photoguide	*Especies de Cecropia en el Parque Nacional Yasuní, Amazonía, ECUADOR (fotoguia)*	**	[Appendix VI – E18]	
	*** Revised versions of these 'fotoguias' to be available on the Rapid Color Guide web site in the near future:*	*** Environmental and Conservation Programs, Field Museum, Chicago, IL, USA*	*http://fm2.fieldmuseum.org/plantguides/rcg_intro.asp?zone=tropical&guidetype=plant*	free on-line
*licenciatura thesis	Santiana , Janeth P. (2005). *La familia Bombacaceae en las tierras bajas del norte y centro de la Amazonía Ecuatoriana, notas sobre su taxonomía y distribución*. Thesis, PUCE. (164 pp. of 233)	*PUCE*	Library of PUCE; [Appendix VI – B1]	-
*licenciatura thesis	Sandoya, Veronica (2007). Diversidad y composición de epífitas vasculares en cuatro tipos de hábitats dentro del Parque Nacional Yasuní, Amazonia ecuatoriana.. Thesis, PUCE	*PUCE*	Library of PUCE; [Appendix VI – B2]	-
				-

18. Appendix IV: Darwin Contacts

To assist us with future evaluation work and feedback on your report, please provide contact details below.

Project Title	***Biodiversity basics strengthening sustainability of the Yasuní Amazonian Rainforest, Ecuador***
Ref. No.	162/10/016
UK Leader Details	
Name	Nancy C. Garwood
Role within Darwin Project	Project leader
Address	Life Science II - Mail Code 6509 Southern Illinois University Carbondale 1125 Lincoln Dr. Carbondale, IL 62901 USA
Phone	
Fax	
Email	
Other UK Contact (if relevant)	
Name	Bob Press
Role within Darwin Project	Senior technical advisor; Associate Keeper of Botany
Address	Department of Botany Natural History Museum, Cromwell Road, London SW7 5BD
Phone	
Fax	
Email	
Partner 1	
Name	Dr. Hugo Navarrete
Organisation	Herbario QCA, Departamento de Ciencias Biológicas Pontificia Universidad Católica del Ecuador (PUCE)
Role within Darwin Project	In-country counterpart and coordinator
Address	Av. 12 de Octubre 1076 y Roca Apartado postal 17-01-2184 Quito - Ecuador
Phone	
Fax	
Email	

19. Appendix V. Original Logical framework.

	Project summary	Measurable indicators	Means of verification	Important assumptions
Goal	**Darwin Initiative Main Objective**: To assist countries rich in biodiversity but poor in resources with the conservation of biological diversity and implementation of the Biodiversity Convention	Countries assisted by DI projects to conserve biodiversity and implement CBD	DI annual reports Press cuttings	DETR funding for DI continues
Purpose	Facilitate conservation & sustainable use of biodiversity within Ecuador's hyper-diverse Yasuni National Park (YNP) & Huaorani Ethnic Reserve (HER) & increase ability of Huaorani to participate in these activities by a) producing training tools and b) providing practical training	Training tools produced Ecuadorian and Huaorani personnel trained Conservation & sustainable use in YNP-HER promoted by uptake of training tools & trainees	-Government and NGO reports on conservation and sustainable development in Ecuador -Correspondence from former trainees indicating employment or training in biodiversity area in YNP-HER	-Ecuador maintains commitment to CBD and protected areas -International/national funding available for uptake of products -Government and NGO reports on biodiversity produced and available
Outputs	1) Huaorani trained locally in modern biodiversity concepts & working practices 2) Ecuadorians trained locally in traditional biodiversity concepts & knowledge, production of guides & educational material 3) Ecuadorian trained in UK on production of guides and project management 4) Multilingual identification guides produced for monitoring biodiversity, training, and community-based ecotourism 5) Multilingual biodiversity educational materials produced for Huaorani schools to link non-Huaorani teachers & concepts to traditional knowledge 6) Links among Huaorani, PUCE, Repsol-YPF & NHM strengthened and focussed on biodiversity issues	1) Huaorani receive 720 person-days in-service training & participate in workshops, 2001-2003, 2) Ecuadorians receive 107 person-months in-service local training & participate in workshops, 2001-2004, 3) Ecuadorian receives 3 months in-service training in UK, 2001-2003 4) Guides published in Spanish by August 2003, published in English & Huao by January 2004 5) Educational materials produced in Spanish by August 2003, produced in Huao by January 2004 6) Joint PUCE, NHM, Repsol-YPF and Huaorani biodiversity activities increased, in-kind or other finanacial contributions directed toward biodiversity objectives	1-3) Interim and final project reports 4-5) Guides and educational materials disseminated on schedule 6) Annual reports of Repsol-YPF, PUCE, and NHM 6) Oral reports from Huaorani community meetings	1-3) Huaorani and Ecuadorian trainees learn techniques and cooperate with each other 4-5) Spanish to Huao translator(s) interested in project and willing to participate 6) PUCE & Repsol-YPF continue to support biodiversity work in YNP-HER 1, 6) Huaorani remain interested and committed to project opportunities
Activities	i) Small teams of Huaorani and Ecuadorians collect and exchange biodiversity concepts and knowledge in field, training each other (outputs 1-4) ii) International & local workshops (outputs 1-6) iii) Research and writing of identification guides and educational materials (outputs 3-4) iv) Train Ecuadorians in production of guides (outputs 2, 4) v) Presentations and workshops attended by staff and trainees from all institutions (outputs 1-2, 6).	<u>Budget</u>:	Interim and final project reports PUCE & NHM accounting procedures	i, iii, iv) Suitable Huaorani and Ecuadorian trainees can be recruited to project; trainees continue with project and keep to schedule ii) International workshops attract international interest i, ii) Relationships among PUCE, Repsol-YPF and Huaorani remain strong; criminal or guerrilla activity does not escalate in Yasuní region v) suitable venues and audiences for presentations identified and addressed

20. Appendix VI: Other material submitted on CD

Appendix VI, Parts A-D - New material submitted with Final Report:

	Description (date of last revision) [pdf files made January 2008]	File names	Number of pages
A) *Common Trees of Yasuní /Arboles Comunes de Yasuní*			
A1	Early color proof of main part of book in Spanish, from SIMBIOE (August 2005)	A1_Yasuni 1-254.pdf [65MB] A1_Yasuni 255-510.pdf [65 MB]	510
A2	Revised descriptive text: Spanish (June 2007) English (June 2007) Huao (February 2007)	 A2_Descriptions_revised_Span.doc A2_Descriptions_revised_Eng.doc A2_Descriptions_revised_Huao.dod	 250 250 250
A3	Illustrated Glossary Spanish & Huao (April 2007) English translation (March 2007)	[9.5 MB] A3_Glossario_illustrated_SpHu.pdf A3_Glossary_English.doc	 11 10
A4	Visual Key / Clave Visual / (May 2007)	A4_Clave_visual.pdf [2.0 MB]	4
A5	Dichotomous key Spanish (November 2005) English (April 2007)	 A5_Clave_escrito.doc A5_Key_written.doc	 9 7
A6	Introduction (draft), English (April 2007)	A6_Introduction_draft.doc	11
A7	Prologue (draft), English (April 2007)	A7_Prologue_draft.doc	2
A8	Index to scientific, Spanish, and Huao names (June 2007)	A8_Index_species_names.xls	32
B) Appendix B - Theses			
B1	Santiana , Janeth P. (2005). *La familia Bombacaceae en las tierras bajas del norte y centro de la Amazonía Ecuatoriana, notas sobre su taxonomía y distribución*. Thesis, PUCE. (164 pp. of 233)	Santiana_thesis.pdf [4.7 MB]	164 (of 233)
B2	Sandoya, Veronica (2007). Diversidad y composición de epífitas vasculares en cuatro tipos de hábitats dentro del Parque Nacional Yasuní, Amazonia ecuatoriana.. Thesis, PUCE	Sandoya_thesis.pdf [3.4 MB]	74
C) Appendix C – Other data			
C1	Specimen database (February 2005)	C1_collections_database.xls	(1120 specimens)
C2	Biodiversity Glossary: Huao-tededo, Spanish, English (April 2007)	C2_Vocabulario.xls	(1174 entries)
D) Appendix D – Other information			
D1	Garwood, NC (2002). Yasuní Darwin Initiative Project Launched. *Plant Cuttings: Research,* Issue 8.	D1_Garwood 2002_Yasuni launched.doc	3
D2	Garwood, NC (2003) Yasuni Revisited. *Plant Cuttings: Research*, Issue 9.	D2_Garwood 2003_Yasuni revisited.doc	2

D3	Sandoya V (2004). Diversity and structure of vascular epiphytes in different habitats in the Ecuadorian Amazon. Annual Meeting of the Association for Tropical Biology and Conservation, Miami. (Published Abstract)	D3_Sandoay_2004_abstract.doc	1
D4	Sandoya, V (2004) Diversity and structure of vascular epiphytes in different habitats in the Ecuadorian Amazon. Annual Meeting of the Association for Tropical Biology and Conservation, Miami. (Poster text)	D4_Sandoya_2004_poster_text.doc	8
D5	Villa, G (2004) "Intercambio de Conocimientos para Conservar Yasuní". Primer Seminario sobre la Biodiversidad, Cultura y Turisom del Ecuador. PUCE, Quito. (Program of meeting)	D5_Villa_title&program.doc	2
D6	List of Huaorani participants	D6_Huaorani_participants.xls	3

Appendix VI, Part E - Appendices first submitted in Annual Report 3 (July 2004):

Number	*Description*	*File name and type*	*Number of pages*
E01	Conservación y Uso Sustentable de la Biodiversidad en la Cuenca Amazonica: symposium announcement leaflet and poster	E01 Symposium.doc	4
E02	Memoria del Evento Conservación y Uso Sustentable de la Biodiversidad en la Cuenca Amazonica: symposium report	E02 Memoria.doc	10
E03	II Congreso de Conservación de la Biodiversidad en los Andes y La Amazonia y IV Congreso Ecuatoriano de Botánica: Tercera Circular (third circular)	E03 Bot Con Circular.pdf	13
E04	II Congreso de Conservación de la Biodiversidad en los Andes y La Amazonia y IV Congreso Ecuatoriano de Botánica: A) Congress announcement flyer, B) Abstacts from the IV Congreso Ecuatoriana de Botánico	E04 Congreso.doc	9
E05	Intercambio de Conocimientos para Fortalacer la Conservación en el Parque Nacional Yasuní: poster	E05 poster sp.ppt	1
E06	Biodiversity Basics Strengthening Sustainability of the Yasuní Amazonian Rainforest, Ecuador: poster	E06 poster en.ppt	1
E07	Los 250 árboles más usados por los huaorani se catalogaron en el Yasuní: newspaper article in El Comercio (print version)	E07 elcomercio book1.doc	2
E08	Los 250 árboles más usados por los huaorani se catalogaron en el Yasuní: newspaper article in El Comercio (on-line version)	E08 elcomercio book2.mht E08 elcomercio book2.doc	2
E09	El Yasuní conserva su notable diversidad: newspaper article in El Comercio (on-line version)	E09 elcomercio Yasuni.mht E09 elcomercio Yasuni.doc	2
E10	Pablo Alvia escarba el bosque desde niño: newspaper article in El Comercio (on-line version)	E10 elcomercio Pablo.mht E10 elcomercio Pablo.doc	2
E11	Abstracts from other International Meetings	E11 other abstracts.doc	1
E12	XVI Congreso International de Medicina Tradicional, Alternativa, y Complentaria: conference announcement flyer	E12 medicina.doc	2
E13	Book Design for "Common Trees of Yasuní"	E13 book design.doc	2
E14	Examples of photographs to be used in "Common Trees of Yasuní"	E14 book photos.doc	2
E15	Examples of Huaorani stories, transcribed in Huao-tededo and translated into Spanish	E15 Huaorani stories.doc	2
E16	Arboles más comunes de la familia Bombacaceae de Ecuador (fotoguia)	E16 fotoguia Bombacaceae.doc	2
E17	Frutos y Semillas >5cm de PARQUE NACIONAL YASUNÍ – Orellana, Ecuador (fotoguia)	E17 fotoguia frutos.doc	2
E18	Especies de Cecropia en el Parque Nacional Yasuní, Amazonía, ECUADOR (fotoguia)	E18 fotoguia Cecropia.doc	2
E19	Signs for Nature Trails	E19 nature trail.doc	2