Darwin Initiative Annual Report

Darwin Project Information

Project Ref Number	15-011
Project Title	Building Capacity for Forest Inventory in the Republic of Congo
Country	Republic of Congo (Brazzaville)
UK Contract Holder Institution	Royal Botanic Garden Edinburgh (RBGE)
Host Country Partner Institutions	Wildlife Conservation Society (WCS)-Congo; Institut Développement Rural (IDR); Centre d'Etudes sur les Ressources Végétales (CERVE).
Darwin Grant Value	£184,500
Start/End Dates of Project	1 June 2006/31 March 2009
Reporting Period and Annual Report Number	1 Apr 2007 – 31 Mar 2008; Annual Report 2
Project Leader Name	Dr. David Harris
Authors, Date	Alexandra H. Wortley & David J. Harris (RBGE) April 2008

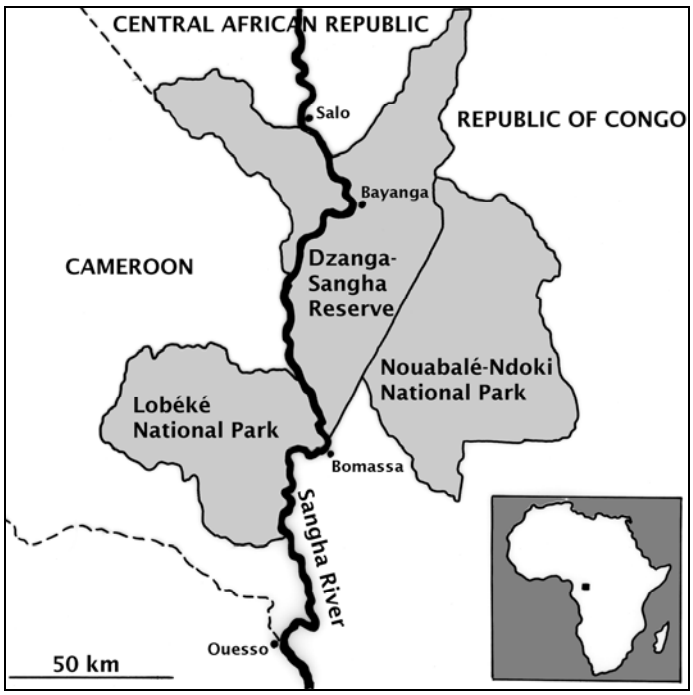
1. Project Background

There are immediate and growing threats to the long-term future of biodiversity in the forests of the northern Congo, from timber extraction, hunting, habitat destruction and climate change. However, stakeholders including the Government of Congo, local researchers, foresters and conservationists are at present faced with inadequate information upon which to base management plans for the conservation and sustainable use of forest resources. Prior to this project only a few people in the world were able to identify many tree species in northern Congo, and field guides or training manuals to the plants of the area did not exist.

The project was established, in recognition of this need, to support forest inventory work through provision of training, taxonomic data and plant identification and training tools in formats suitable for local users. The foundation of these products is a comprehensive botanical dataset, accessible to a variety of forest stakeholders, supported by a sustainable, tested infrastructure and trained personnel, and linked to global datasets for identification using a range of traditional and modern techniques.

Project activities have centred on the lowland tropical forests of Nouabalé-Ndoki National Park and the adjacent logging concession Kabo Unité Forestière d'Aménagement (UFA), in the northern Republic of Congo. Several of the project outputs relate to adjacent protected areas in the contiguous forests of Cameroon and the Central African Republic, known collectively as the Sangha Trinational Landscape (see map).

Map. The Sangha Trinational Landscape including its three constituent protected areas.



Map: Anna Dorward

2. Project Partnerships

Formal partnerships. The relationships between project partners have continued to grow, especially through the three joint training trips to northern Congo by the UK project leader and Dr. Jean-Marie Moutsamboté of the IDR, Université Marien Ngouabi, the training of one WCS-Congo staff member in the UK, and the successful grant-writing activities between UK staff and Dr. Emile Kami of CERVE.

The main host country partner, WCS-Congo, continues to provide vital support to the training and research activities of the project in northern Congo, both in Nouabalé-Ndoki National Park and the Kabo UFA. This year, for the first time, a training course was also conducted in the Lac Télé Community Reserve, increasing the number of host country partner staff involved in the project. Each of the individual trainees from the first training course in August 2007 maintained contact with the UK project leader during Year 2, and all but one of them received further training through the project this year.

The partnership between the IDR and the UK project leader is based on the vision shared between two individuals who have worked together since 1993. During the past year this partnership has continued to grow through the shared experience of running training courses, joint publications submitted and further publications planned. The relationship has now also expanded to include students of the IDR.

The partnership with CERVE also continued to grow this year. Dr. Kami planned to teach on the project training course in November 2007, and was only prevented from doing so by circumstances outside his control. A large number of herbarium specimens including several species previously unrepresented in the Brazzaville national herbarium were deposited at CERVE, and archive quality materials for the permanent mounting of these specimens have been ordered.

Through the activities of the project, relationships between the host country partners (WCS, the IDR and CERVE) have also been strengthened, providing a strong basis for future collaborations and a commitment to botanical inventory and conservation in Congo. A joint grant application to the *Sud Expert Plantes* Initiative of the Ministère français des Affaires Etrangères has been successful, providing further support for botanical research in northern Congo and demonstrating the ability of the host country partners to collaborate and compete on a world-wide footing for research and conservation funding.

The capacity of the RBGE to be an effective project partner continued to grow, as project staff developed further expertise in providing training and information in a variety of formats to support the work of the host country partners.

Other collaborations. In Year 2, training was not only provided to staff and students of the project partners, but also involved participation from local government and communities in Congo. Dr. Wortley (RBGE) built a strong link with other botanists working in central Africa, through a four-week trip to the National Herbarium of Belgium, Brussels. As well as identifying over 700 project specimens in the family Rubiaceae, and developing characters for identification in this family, she made a presentation contributing to wider awareness of the project amongst the international plant taxonomic community. Dr.

Harris met with Dr. Jefferson Hall of the Smithsonian Tropical Research Institute, Panama, to discuss the possibility of the project's permanent plots becoming part of a worldwide network of botanical study sites. Relationships with Dr. William Hawthorne and Denis Filer at the University of Oxford continued to grow with respect to database support and online herbaria.

The partnership between the UK lead institution and host country partners has increased the latter's capacity to meet Congo's commitments to the CBD in a number of ways. Firstly, by the training of trainers in inventory and identification; secondly through an increased scientific knowledge of the plant species occurring in northern Congo; thirdly by the provision of herbarium specimens which document the species diversity of northern Congo; and finally by the capture of thousands of images of living plants from which the herbarium specimens were taken. Without these resources it would be impossible to make many essential, evidence-based decisions about the sustainable use of plants and their conservation in northern Congo. The project link to the local CBD focal point is Mr. Jean-Colin Namedoum, Directeur de la Conservation des Ecosystèmes Naturels at the Ministère de l'Economie Forestière et de l'Environnement, through Dr. Mokoko of WCS-Congo.

3. Project Progress

Project progress during Year 2 is shown against the Logical Framework from Year 1 (as recommended in the Year 1 Annual Report Review) in Annex 1. The current Logical Framework itself is shown in Annex 2.

3.1 Progress in carrying out project activities

Output 1. Checklist of tree species. Completed Year 1; no activities required in Year 2.

Output 2. Checklists for two protected areas. As planned, three training and collecting trips took place in Year 2, in three protected areas (Nouabalé-Ndoki National Park, Kabo UFA Buffer Zone, and Lac Télé Community Reserve). The training activities of these trips are detailed under section 3.4, with more than the planned amount of training achieved. Specimens collected in the former two areas have been used to compile two checklists to the tree species Nouabalé-Ndoki National Park and Kabo UFA (see Annex 3), as planned, which are shortly to be translated into French to enable them to reach a wider audience in Congo. Collections from Lac Télé Community Reserve are being identified by Drs. Moutsamboté and Kami, and may be used to produce a further checklist during Year 3.

Output 3. Permanent plots. Thirty one-hectare plots were set up in Year 1. During Year 2 all possible trees from the plots were identified through examination of voucher specimens or the trees themselves, as planned in the project timetable. This information has been used in compiling the checklists as outlined above.

Output 4. Herbarium collections. All collections from Nouabalé-Ndoki National Park and Kabo UFA have now been identified and databased on schedule by project staff in Edinburgh and Congo (see Annex 4), labels prepared and the specimens deposited at the herbaria of Bomassa, Brazzaville (IEC) and Edinburgh (E). The number of specimens collected (10,000) was much greater than the 4,000 originally proposed.

Output 5. Virtual herbarium. Activities towards databasing and making the project's images available on-line as part of a virtual herbarium are now underway and will be reported on in Year 3, as planned.

Output 6. Training and identification manual. A major activity during Year 2 has been the preparation of the text (by project staff) and illustrations (by renowned botanical artist Rosemary Wise) for *Sangha Trees: An Illustrated Identification Manual.* This manual provides descriptions of 522 tree species in French and English. All text, translations and illustrations have been completed on schedule, and the manual has now been typeset. Printing and distribution of the 300 copies will be completed early in Year 3.

Output 7. Papers and reports. During Year 2, three papers have been drafted and two submitted, one more than planned (*Sangha Trees: an identification and training manual, Training in tropical plant identification* and *Checklist to the trees of Nouabalé-Ndoki National Park and Kabo UFA, northern Republic of Congo*). The former two were submitted to the peer-reviewed volume *Descriptive Taxonomy Serving Biodiversity, Proceedings volume from presentations at the Systematics Association Biennial Conference, August 2007.* The latter will shortly be submitted to *Edinburgh Journal of Botany.* In terms of reports, two further documents have been produced (in French) during Year 2: *Rapport de Mission Botanique sur les Inventaires Botaniques des Parcelles 1 et 5 dans la Zone DES Ecosystems Peripheriques du Parc, Kabo, Departement de la Sangha* and *Rapport de Mission Effectuée dans la Réserve Communautaire du Lac Télé, Epéna – Ipongui, Département de la Likouala* (see Annex 5). All paper and report-writing activities have been carried out on time and as planned.

Output 8. Publicity material. Although all the activities described above have involved awareness-raising and publicity in Congo, no specific activities towards producing publicity outputs have been conducted in Year 2. The production of posters has been delayed to Year 3 to enable us to include some of the beautiful illustrations generated for *Sangha Trees.* Further press releases and broadcasts will also follow in Year 3, allowing us publicise the successes of the project to the fullest extent, and giving more time to explore possibilities for publicity with a range of host country partners.

Other activities. The planned two weeks of undergraduate teaching has been delayed until Year 3, after consultation with Dr. Moutsamboté, in order better to fit in with the Université Marien Ngouabi timetable. This change has been agreed by the Darwin Secretariat (in September 2007; see Annex 7). In September 2007 two project representatives (Dr. Harris and Dr. Wortley) attended the Biennial Conference of the Systematics Association. Two presentations were made (one more than planned) and both were written up as papers (see above). A sample of the training manual *Sangha Trees* was demonstrated at the conference, eliciting valuable feedback on design as well as generating publicity for the project.

Activities towards training one Congolese para-taxonomist to MSc level in order to continue the work after the end of the Darwin grant have continued. The candidate student completed a final term of tuition in Academic English at Stevenson College Edinburgh from May-June 2008. She was accepted onto the Edinburgh University MSc in Biodiversity and Taxonomy of Plants, and her place was successfully deferred until September 2008 to enable her to achieve the required level of English proficiency. She will take further examinations in Year 3. As discussed with the Darwin Secretariat, the difficulties encountered by the student in attaining the level of English required for entry into a UK University resulted in the deferral of her enrolment on the MSc course, with consequent effects on the budget for Years 2 and 3. All changes to the budget and timetable were agreed by the Secretariat (see Annex 7). In the meantime the student has continued to develop her botanical skills in Congo by conducting fieldwork in Nouabalé-Ndoki National Park from July 2008 – March 2009.

3.2 Progress towards project outputs

Output 1. Checklist of tree species. Completed, documented and evidenced in Year 1.

Output 2. Checklists for two protected areas. Checklists to the tree species of Nouabalé-Ndoki National Park and Kabo UFA have been produced as planned (see Annex 3 for verifiable measure), and will be translated into French and distributed among project partners and other parties during the remainder of the project. A further checklist, to the trees of Lac Télé Community Reserve, is also to be produced during Year 3; therefore the proposed output is likely to be exceeded. In order to better suit the needs and expectations of our project partners and end-users, we have decided not to print and distribute copies of these checklists (and that in Output 1) but instead to make them available as pdf files and to print hard copies on request; The logical framework (Annex 2) has been modified to reflect this.

Output 3. Permanent plots. Thirty one-hectare plots were completed during Year 1. A summary of the plot data is enclosed (Annex 6) as the measurable indicator for this output.

Output 4. Herbarium collections. Over 10,000 specimens have now been collected from three protected areas in northern Congo; this is more than twice that originally proposed. A specimen list is enclosed (Annex 4) as the measurable indicator for this output.

Output 5. Virtual herbarium. Over 4,000 digital images of Congolese plants have now been made and the project is therefore well on target to provide the proposed 5,000 images and make them available on-line by the end of Year 3. The measurable indicator remains appropriate – image lists and images on CD will be sent with Annual Report 3. The assumption that our project partners continue to have access to electronic media in order to access the data remains true.

Output 6. Training and identification manual. As proposed, the training manual *Sangha Trees* has been written, translated and typeset. Printing and distribution of the 300 copies will be completed early in Year 3. The measurable indicator remains appropriate – a copy of the manual and distribution list will be sent with Annual Report 3.

Output 7. Papers and reports. Three peer-reviewed papers have been drafted (one more than planned) and two so far submitted. In addition to the report documented in Year 1, two further reports have been produced during Year 2 (see Annex 5); thus we are well on target to meet this output by the end of Year 3, and the measurable indicator remains appropriate for verification. We see no reason to believe that our assumptions with regard to uptake and implementation of the recommendations in these reports are invalid.

Output 8. Publicity material. Production of posters, press releases and broadcasts remains on target to be completed by the end of Year. The measurable indicator remains appropriate – copies of all publicity outputs will be sent with Annual Report 3.

Other outputs. Through the activities described above, in total, two high-level trainers (Drs. Moutsamboté and Kami) received 3-7 days intensive training by the project leader; two para-taxonomists received three weeks training; five para-taxonomists received two weeks higher level training and eight new trainees received para-taxonomy training as in Year 1. This exceeds the amount of training proposed for Year 2, although the undergraduate training has been delayed to Year 3 as described above, in order to provide the most useful support to the Université Marien Ngouabi.

3.3 Standard measures

Table 1 Project standard output measures

Code	Description	Year 1	Year 2	TOTAL
4C	Training of postgraduates	7	13	15 (most trainees from Year 1 also trained Year 2)
4D	Duration of training courses measured on *pro rata* basis	4	6.5	10.5
6A	1 term tuition in Academic English	1	1	1 (same person Years 1 & 2)
6B	1 term tuition in Academic English	24	8	32
7	2 reports based on project training courses	1	1	1 (same type of output in both years)
8	Time spent in Congo during 1 trip by 2 UK staff and 2 trips by 1 UK staff member	15	13.5	28.5
12A	Botanical Research and Herbarium Management System (BRAHMS) database maintained	1	(maintained only)	1
13B	Herbarium collections totalling 10,000 sheets to date contributed to herbaria of Brazzaville (IEC) and Bomassa	2	2	2 (same herbaria in both years)
14B	2 project staff attended and presented papers at Systematics Association Biennial Conference	1	1	2
15C	(none in Year 2)	1	-	1
20	Herbarium supplies for mounting specimens, GPS handset, 10 sets of hand lenses and secateurs, specimen drying equipment	£2,500	£1,000	£3,000
22	(none in Year 2)	30	-	30
23	Contributions in-kind: rent, rates, heating and overheads £7,000; office costs £2,000; travel and subsistence £20,000; insurance £500; national park entry fees £3,000; salaries £53,000	£77,800	£85,500	£163,300

Table 2 Publications

Type	Details	Publishers	Available from
Checklist*	*Draft checklist to the trees of Nouabalé-Ndoki National Park, Republic of Congo,* David J. Harris, Alexandra H. Wortley, Emile Kami, Jean-Marie Moutsamboté & Connie J. Clark, March 2008	Unpublished checklist	Dr. Harris, Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR
Checklist*	*Draft checklist to the trees of the Kabo UFA, Republic of Congo,* David J. Harris, Alexandra H. Wortley, Emile Kami, Jean-Marie Moutsamboté & Connie J. Clark, March 2008	Unpublished checklist	Dr. Harris, Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR

*included with this report (Annex 3)

3.4 Progress towards project purpose and outcomes

Three main purposes are outlined in the Logical Framework; these are discussed in turn.

Progress towards training staff for forest inventory and conservation. Three training trips to Congo were conducted during Year 2, in April (moved from December 2006 with the agreement of the Darwin Secretariat), June and November 2007. The first trip, to Brazzaville and Nouabalé-Ndoki National Park, included two UK staff: project leader Dr. Harris and research assistant Dr. Wortley. Dr. Harris conducted three days of intensive training with Dr. Kami (CERVE) and 15 days *in situ* training and mentoring.

During the second trip, by Dr. Harris, further specimen collecting and identification was carried out, whilst at the same time providing three weeks training for the two project para-taxonomists, one week of which was conducted jointly with Dr. Moutsamboté (IDR).

The third trip comprised a full, formal, certificated two-week training course at Lac Télé Community Reserve for 13 students, five of whom had attended the course in Year 1 and who were therefore trained at a higher level than the remaining eight. The higher-level training included a recap of collecting techniques, further identification (to genus and species level), digital photography, advanced collecting techniques including special techniques for selected groups, and collecting into silica gel for DNA-based analysis. The basic training course was as in Year 1, covering botanical collecting techniques and identification to family level. This course was conducted very successfully by Dr. Moutsamboté and the five higher-level students, providing strong evidence that we have facilitated continued future training through the training of trainers. Although, due to an unexpected change in travel plans, there was little time for formal feedback and training, the ability of those students trained last year successfully to train others in the techniques and knowledge they had gained shows very strongly that the training courses have been a success. The reports included in Annex 5 also provide evidence of the progress of the training courses, and the measurable indicators and means of verification remain appropriate.

The training of one candidate in English, as a pre-requisite for her training at MSc level as a plant taxonomist, continues as described above and has been formally tested by both the IELTS and TOEFL examinations. Training of c. 30 undergraduate students at Université Marien Ngouabi is to be conducted during Year 3. The measurable indicators and means of verification for these two forms of training also remain appropriate.

Progress towards developing novel ways of organising and presenting botanical data. The collections and images made and databased through the project activities described above provide a sound basis for the dissemination of botanical information to a wide audience through novel means such as an on-line virtual herbarium. The production of such a resource will be a major target during Year 3 of the project. The training and identification manual *Sangha Trees* also incorporates several novel design features. For example, the book is printed in monochrome and in A4 size,to facilitate printing and photocopying *in situ* in northern Congo; we are also investigating the ability to print further copies on demand from an electronic source. The measurable indicators and means of verification for this project purpose remain appropriate.

Progress towards providing crucial data and advice for management. As described above, we have made significant progress by providing the first training and identification manual to the trees of the northern Congo, plus papers and reports on the flora of the area. More outputs in support of this project purpose will be produced during Year 3. The measurable indicators and means of verification remain appropriate. It is this project purpose on which the major purpose level assumption has most impact, i.e. that there is continued support for conservation and sustainable use of forest resources by Congo government, NGOs and other stakeholders. All our experiences during Year 2 of the project indicate strongly that this assumption remains valid, implying that there will be a good uptake of the project outputs resulting in a long-term impact and legacy in terms of biodiversity conservation and research in Congo.

3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

To date, the project has provided at least 15 individuals (para-taxonomists) with the skills to carry out botanical inventory, identify plants, and thereby to support research and conservation activities. This has increased significantly the capacity in Congo for people to research, conserve, manage and make decisions on sustainable forest use. All the trainees continue to work in the northern Congo area or are furthering their education in related subject areas abroad.

One major result from this project has been the production of a dataset of species-level identifications for c. 10,000 measured and marked trees in 30 permanent plots. These data provide a sound scientific basis for future monitoring of long-term trends in forest structure and composition, which will help researchers

and conservationists in Congo to study and conserve their biodiversity. The plots also have the potential to become part of a world-wide project monitoring tropical forests' responses to global climate change.

At the same time, the botanical reference collection of over 10,000 specimens, each of three duplicates, deposited at two herbaria in Congo and one in the UK, provides an invaluable resource for botanical study supporting further biodiversity research, and for training of botanists and conservationists in plant identification techniques. The checklists, particularly when translated into French, and the training manual to be distributed this year will also provide invaluable resources for those conducting biodiversity research aimed at the conservation and sustainable use of Congo's forests, and for training future generations to do the same.

4. Monitoring, Evaluation and Lessons

Monitoring and evaluation. As described above, the para-taxonomic training component of the project, conducted during three trips to Congo, was monitored by the trainers. As in Year 1, Drs. Moutsamboté and Harris monitored and evaluated all trainees' progress through a series of direct observations and interviews, reviewing the students' progress and modifying the course accordingly, to provide the best possible training for each individual. Feedback forms were distributed at the end of each formal course and the trainees instructed in their purpose and how to complete them. These were read and assessed by the trainers after the course and relevant suggestions incorporated into later courses.

In addition, two independent means of monitoring the effectiveness of the training courses were employed this year. The first was to quantify the specimens collected by the trainees after they had completed their training. Five of the seven trainees were able to continue with botanical inventory in their existing jobs, of which two who were employed full time to carry out plot inventory collected over 4,000 specimens each over one year. A less quantitative but even more valuable indicator of the success of the training was the quality of the specimens themselves. All the specimens collected by the trainees after the training reached international standards. Furthermore one trainee, who collected c. 200 specimens, made some of the highest quality specimens that Dr. Harris has ever seen.

Another measure of success in training came about by accident during Year 2. Due to travel difficulties Drs. Harris and Moutsamboté were unable to be present at the start of the training course at Lac Télé Community Reserve. With instruction via email and mobile telephone, the trainees from the previous course themselves began conducting the basic level training. When Drs. Harris and Moutsamboté arrived three days later they found all the new trainees successfully using appropriate inventory techniques and correctly identifying plants. This is both a reflection of the competence and initiative of the previous year's trainees (now trainers), and a strong indication of the success of the training they had received.

A final indicator of training success is the fact that many former project trainees are now undergoing further training (e.g. through a doctoral programme in the USA) or working successfully in forest inventory and conservation (with WCS-Congo). It is clear that the training conducted during Years 1 and 2 has contributed very significantly to the first strand of the project purpose, namely *to train staff for forest inventory and conservation.*

Of the other project achievements during Year 2, the scientific content of the manuscripts (and thereby the published checklists on which some of these are based) will be monitored through formal peer review. The herbarium collections made by the project are now available for scrutiny by the international taxonomic community. All database entries have been checked and verified by a second member of the project team other than the person that entered the data.

The project's major output this year – *Sangha Trees: an Illustrated Identification Manual* – has been thoroughly checked by both project staff and independent botanical and non-botanical, English and French proof-readers at every stage of production, to ensure scientific accuracy, clarity and quality. Furthermore, it will be extensively tested during Year 3 when it will be used by project trainers and trainees to both identify plants and learn techniques for plant identification, *in situ.* This should provide a very strong indication of the manual's importance in delivering on the second and third project purposes: *to develop novel ways of organising and presenting botanical data; and to provide crucial data and advice for management.*

The quality of the digital images taken during the project, as well as the data associated with them, will need to be high if they are to be made available as part of an international web-based project at the University of Oxford, also contributing to the second project purpose. Both project team members and staff at the Oxford Virtual Field Herbarium will be involved, during Year 3, in assessing and monitoring that this resource meets its specified aims.

Lessons. One important lesson learned during Year 2 is the importance of choosing an experienced host country partner to help with logistics. Despite difficult conditions in northern Congo the project achieved its objectives; this would not have been possible without the infrastructure and logistical support provided by WCS-Congo.

A second important lesson learned is that problems with language learning can be a significant impediment to achieving project objectives. In spite of careful budgeting and timetabling for English language training it was not possible for the candidate for the MSc training in UK to reach the required level. This is a widespread issue in countries where English is not widely used. One solution might be for the Darwin Initiative to provide targeted funds to address this issue.

5. Actions Taken in Response to Previous Reviews

The review of last year's Annual Report was very fair, favourable and extremely useful. Three points were made for which responses were requested at this stage; these are provided here:

1. To what extent could the permanent plots be used to provide additional information such as on regeneration and useful plants other than the tree component? As mentioned in the most recent Half Year Report, the permanent plots form the basis of a significant research programme into regeneration conducted by our project partners. At present we have collected data only on tree species, but the permanent nature of the plots and quality of the data already collected means it would be easy to extend this to the herbaceous and lianescent components in future. Some of the project's training has focused on an inventory of non-tree species, and the candidate for the MSc course is planning to study herbaceous plants in northern Congo as part of her MSc research project. With regard to useful plants, many of the species (trees and non-trees) in the permanent plots are sources of non-timber forest products, and in future the data from the plots will be suitable for a range of studies of useful plants.

2. *The logical framework as it appears in Annex 1 (Report of Progress) is much clearer than the current logical framework. It could be usefully adopted as the structure from now on.* It will be clear from Annexes 1 and 2 that this has been done.

3. In due course a more formal assessment of the effectiveness of the training will be required. This should not require greatly additional work. We agree that there is a need for such formal assessment and plan to do this. During Year 3 we intend to conduct more formal monitoring of all three training strands: the para-taxonomy courses through formal observation and certification; the undergraduate training through formal examination; and the MSc training through both examination and assessed course-work. We would appreciate any further suggestions from the reviewer on this.

6. Other Comments on Progress Not Covered Elsewhere

Other notable project achievements in Year 2 include the leveraging of additional funding from a variety of sources. The largest of these was a successful grant application (made by CERVE in collaboration with IDR and RBGE) to the *Sud Expert Plantes* Initiative of the French Ministère français des Affaires Etrangères, providing the sum of 20,000 Euros over two years to support forest inventory in Lac Télé Community Reserve. In addition the sum of c. £15,000 was raised from the Sibbald Trust at the RBGE, to fund the salary of a post-doctoral researcher (Dr. Wortley) for six months to support the work of the project.

The main risk faced by the project at the present time is that the candidate MSc student may not achieve the required proficiency in English to enable her to enrol on a course at a UK university. This presents a risk because her training to post-graduate level forms a major part of the project exit strategy aimed at providing a lasting legacy of trained plant taxonomists in Congo. We have done, and will continue to do, everything possible to ensure that this risk is minimised, including supporting the student through further English courses and examinations.

7. Sustainability

During Year 2 the profile of the project has risen greatly within Congo, through working in a larger number of areas (adding Lac Télé to the project portfolio), with organisations other than our direct partners including local government officials. We are hoping to increase this profile still further in Year 3, by the production of posters promoting the project's work and outputs. We are also in discussions with local film-makers and TV companies about the possibility of promoting our work through these media.

The project continues to become better known amongst organisations in Congo, as evidenced by the large number of students drawn from a variety of organisations who were keen to take part in this year's training courses. This suggests not just interest in the project itself, but also a growing awareness of the importance of biodiversity conservation and sustainable use, and of the role that sound scientific data and botanical identifications can play in this. We believe that the publication of two checklists, the training manual, and the project reports, all of which will be widely-distributed in Congo and further afield during Year 3, will help to further enhance this awareness.

As discussed above, the ability of past project trainees in training others demonstrates that we have built clear capacity for the activities of the project to continue long after Darwin funding has ceased. The commitment of the project partners WCS-Congo, to conservation and research, the IDR, to training, and CERVE, to providing an infrastructure supporting botanical study in Congo, all indicate that the project exit strategy will be successful. Another important component of the exit strategy is the training of one WCS staff member to MSc level, equipping her to lead the project onwards. We are working hard to ensure that this part of the project legacy is put in place by the end of Year 3.

The success of the grant proposal to *Sud Expert Plantes*, to which we provided some input but which was largely led by the project host country partners, indicates that there is now strong capacity in country to solicit and attain external funding for future research and conservation activities, providing a sustainable basis for long-term research and biodiversity conservation in the forests of the northern Congo.

8. Dissemination

All project outputs this year – the checklists, papers, reports and training manual – are aimed at the research and training community in Congo as well as government and conservation organisations. All have been, and will be, widely disseminated amongst relevant organisations and individuals. Further outputs aimed at wider audiences (such as posters, the virtual herbarium, and TV reports) are planned for Year 3. As discussed in previous reports, the project outputs have been designed to enable continued dissemination after the formal end of the project, through downloading from websites with committed long-term presence and support, including RBGE and the University of Oxford.

9. Project Expenditure

Table 3 Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Item	Budget	Expenditure	Balance
Rent, Rates, Heating, Overheads, Office Costs, etc.	-	-	-
Travel and Subsistence			
Printing			
Conferences, Seminars, etc.			
Capital Items/Equipment			
Other Costs (staff training, books, shipping, artist fees, other professional fees, bank charges and audit fees)			
Salaries (Dr. Wortley)			
TOTAL			

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2007/8

Project Summary	Measurable Indicators	Progress and Achievements April 2007 – March 2008	Actions Required/planned for Next Period
Goal: *To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve:* *The conservation of biological diversity,* *The sustainable use of its components, and* *The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.*			
Purpose. To train staff for forest inventory and conservation; to develop novel ways of organising and presenting botanical data; to provide crucial data and advice for management.	One trained plant taxonomist (MSc), eight para-taxonomists and c. 30 BSc students; virtual herbarium developed, distributed and made available online, personnel trained to maintain it; papers, reports and recommendations on sustainable management.	Two high-level trainers and 15 para-taxonomists have now been trained by the project; virtual herbarium development continues; papers and reports are all on-track.	MSc student to achieve the required level of English and enrol on MSc course in *Biodiversity and Taxonomy of Plants* at RBGE; virtual herbarium to be completed; outstanding reports, papers and publicity material to be completed.
Output 1. Checklist of tree species.	200 copies of checklist published by end of Year 2.	Checklist published, distributed and submitted with AR1; as discussed above, copies will be made available electronically rather than in printed form; no further action required in Year 2.	
Output 2. Species checklists for two protected areas.	Two manuscripts drafted Year 2, published in peer-reviewed journal Year 3, 300 copies of each distributed.	Two manuscripts completed and attached (Annex 3). These are shortly to be translated into French. As discussed above, copies of checklists will be now made available electronically rather than in printed form; indicator modified to reflect this change.	
Activity 2.2. Checklist writing.		Specimens collected in activity 4.1 have been identified, databased, and checklists compiled.	
Output 3. 1 Ha permanent plots.	Thirty plots established by end of Year 2.	Plots established and reported on in AR1; all possible trees now identified (see Annex 6).	
Output 4. Herbarium collections.	4,000 specimens representing 500 species by end of Year 3.	Collection of botanical specimens for this project is now complete, with a total of 9,895 collections made and deposited at herbaria of Bomassa, Brazzaville (IEC) and Edinburgh (E). See Annex 4 for a list of specimens collected. Indicator appropriate as modified in AR1.	

Activity 4.1. Herbarium specimen collection.		Specimens collected during three 3½-week training and collecting trips to Kabo UFA, Nouabalé-Ndoki National Park and Lac Télé Community Reserve, by project leader and others.
Output 5. Virtual herbarium.	5,000 images of 500 species by end of Year 3.	Image collection nearing completion; databasing and preparation for making available on-line underway. Indicator appropriate.
Activity 5.1. Image collection		c. 4,000 images now made during trips to Congo; further images to be generated during Year 3.
Activity 5.2. Development of virtual herbarium		Databasing of images is underway, in preparation for making them available as an on-line resource.
Output 6. Tree identification and training manual.	Drafted Year 1, reviewed Year 2, published Year 3, 300 copies distributed.	Manual drafted and typeset; printing and distribution to be completed in Year 3. Indicator appropriate.
Activity 6.1. Writing training manual.		*Sangha Trees – An Illustrated Identification Manual*, containing 522 tree species, written, translated into French and typeset.
Activity 6.2. Illustration of training manual.		520 species illustrated. Illustration complete.
Output 7. Papers and reports on forest management and conservation.	At least two peer-reviewed papers and four reports published, sent to managers and policy-makers by end of Year 3.	Two peer-reviewed papers and two reports (in addition to one reported in AR1) completed to date. Further reports to follow in Year 2. Indicator appropriate.
Activity 7.1. Writing peer-reviewed papers.		Three papers written and two so far submitted: *Sangha Trees: an identification and training guide to the trees of the northern Republic of Congo* by A.H. Wortley & D.J. Harris and *Training in tropical plant identification* by D.J. Harris, S. Bridgewater & J.M. Moutsamboté submitted to *Descriptive Taxonomy Serving Biodiversity, Proceedings volume from presentations at the Systematics Association Biennial Conference, August 2007*; *Checklist to the trees of Nouabalé-Ndoki National Park and Kabo UFA, northern Republic of Congo* by D.J. Harris, A.H. Wortley, E. Kami, J.-M. Moutsamboté & C.J. Clark drafted, to be submitted to *Edinburgh Journal of Botany*.
Activity 7.2. Writing reports.		Two reports completed this year: *Rapport de Mission Botanique sur les Inventaires Botaniques des Parcelles 1 et 5 dans la Zone des Ecosystemes Peripheriques du Parc, Kabo, Departement de la Sangha* by J.-M. Moutsamboté & D.J. Harris and *Rapport de Mission Effectuée dans la Réserve Communautaire du Lac Télé, Epéna – Ipongui, Département de la Likouala* (see Annex 5).

Output 8. Publicity material	200 copies of two posters, three press articles, two radio/TV broadcasts.	No further activities conducted in Year 2 (one poster and press article already reported in AR1). All remaining publicity material to be generated in Year 3. Indicator appropriate.
Activity 8.1. Poster preparation.		Posters delayed until illustrations for Sangha Trees were complete, in order that these could be used in their production. Preparation of posters to continue during Year 3.
Activity 8.2. Publicity activities.		Further press releases and broadcasts delayed until Year 3 while we continue to explore possibilities with in-country partners.

Annex 2 Project's full current Logical Framework

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal: *To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve:* *The conservation of biological diversity,* *The sustainable use of its components, and* *The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.*			
Purpose. To train staff for forest inventory and conservation. To develop novel ways of organising and presenting botanical data. To provide crucial data and advice for management.	One trained plant taxonomist (MSc), eight para-taxonomists and c. 30 BSc students. Virtual herbarium developed, distributed and made available online, personnel trained to maintain it. Papers, reports and recommendations on sustainable forest management.	Training reports, payroll records, university exam records, reports. Distribution list and website. Copies of papers, reports and recommendations with distribution lists.	Continued support for conservation and sustainable use of forest resources by Congo government, NGOs and other stakeholders.
Output 1. Checklist of tree species.	Checklist made available in electronic form.	Copy submitted with annual report.	
Output 2. Species checklists for two protected areas.	Two manuscripts drafted Year 2; published in peer-reviewed journal Year 3; made available in electronic form.	Drafts and copies of papers sent with annual reports.	
Output 3. 1 Ha permanent plots.	Thirty plots established by end of Year 2.	Plot data sent with annual reports.	
Output 4. Herbarium collections.	4,000 specimens representing 500 species by end of Year 3.	Specimen lists sent with annual reports.	

Output 5. Virtual herbarium.	5,000 images of 500 species by end of Year 3.	Image lists and CD sent with annual reports.	Partners continue to have access to electronic media.
Output 6. Tree identification and training manual.	Drafted Year 1; reviewed Year 2; published Year 3; 300 copies distributed.	Copy of manual and distribution list sent with reports.	
Output 7. Papers and reports on forest management and conservation.	At least two peer-reviewed papers and four reports published, sent to managers and policy-makers by end of Year 3.	Copies of manuscripts, reviewers' comments and reports sent with final report.	Recommendations incorporated into management. Management plans continue to be prepared.
Output 8. Publicity material.	200 copies of two posters, three press articles, two radio/TV broadcasts.	Copies of all outputs sent with annual reports.	Conservation messages understood and acted upon.