Darwin Fellowship - Final Report

(Please check guidance for submission deadlines, max 6 pages.)

Darwin Project Ref No.	EIDPS032
Darwin Project Title	Building capacity for forest inventory in the Republic of Congo.
Name of Darwin Fellow	Sydney Thony NDOLO EBIKA
UK Organisation	Royal Botanic Garden Edinburgh
Your Organisation	Wildlife Conservation Society-Congo
Your role in your Organisation	Botanist
Start/end date of Fellowship	July 2013- June 2014
Location	Edinburgh
Darwin Fellowship funding (£)	£20,700
Type of work (e.g. research, training, other, please specify)	Research training.
Main contact in UK Organisation	Research training
Author(s), date	Sydney Ndolo Ebika and David Harris, 1 October 2014

1. Background

- Briefly describe your involvement in the Darwin project before the start of your fellowship.

I started to be involved in the Darwin project in August 2006. As part of the Capacity Building of the Darwin Initiative for the Republic of Congo (Brazzaville), a botanical training was organised by Dr Harris. (from the Royal Botanic Garden Edinburgh and initiator of the project) and his collaborator Dr Moutsamboté, J.-M. (Marien Ngouabi University) in Kabo, Republic of Congo. I attended that training as a trainee where I learnt about botanical inventories and plant identification. Then, in 2008 I had a second opportunity to do a fieldwork on tree identification in plots. In 2009, Dr Harris obtained a post-project Darwin grant that allowed me to come to the United Kingdom to learn English and do an MSc in Biodiversity and Plants taxonomy at the University of Edinburgh.

- Describe aim and objectives of the Fellowship, and programme of work.

The main aim of the Fellowship was to allow me to: increase my skills in plant identification and publication of scientific papers; and so gain skills and competences on topics that I didn't have before.

The objectives the Fellowship were: (1) to identify botanical specimens collected by me in and around the Nouabalé-Ndoki National Park (NNNP); (2) to design, write and submit two papers; (3) to design and create a web output of biological information; (4) to attend academic training.

- Briefly describe the roles of the UK and Fellow's institutions.

The Royal Botanic Garden Edinburgh served as a host institute for me in the UK. Most of my training during the fellowship year came from working with David Harris, being trained in the molecular laboratory and attending seminars. The institute played an important role in supervising the activities and establishing contacts with organisers of different training.

The Wildlife Conservation Society-Congo is my employer and served as field station where I carried out all my field activities. The society is working in collaboration with the Congolese government to

manage the Nouabalé-Ndoki National Park and carry out research on forest elephants, chimpanzees, gorillas and others species including plants and fungi.

- If you have undertaken a formal course of training, please provide a brief explanation of the course and a link to the course website if available.

I received a tailor-made one-to-one course in scientific writing. I attended a phylogenetic training course and a statistics training course. I participated in molecular laboratory training.

2. Achievements

- Summarise the work undertaken during your Fellowship. What were the main activities undertaken. Highlight any work undertaken but not originally planned and explain why this happened. Highlight any problems encountered and how they were overcome.

Specimen identification: three hundred and thirteen plant vouchers collected in the Republic of Congo were brought to the Royal Botanic Garden Edinburgh for identification. Of the 313 specimens, 244 were identified at the species level, 34 at the genus level, 30 at the family level and five (5) unknown. Some species such as *Triaspis emarginata* De Wild. (Malpighiaceae) are the first records from northern Congo. In addition, species of *Ficus* and their specimens have been used in two manuscripts of articles on that genus.

Training and conference in Belgium: The training in Belgium focused on learning techniques for identifying specimens of macrofungi. Mycology is a neglected field in the Republic of Congo despite the high diversity of species found in the forest and their importance as a source of food and income for local people in Congo-Brazzaville. This training allowed me to identify specimens of edible mushrooms and present the results as a poster during an International Conference on Nutrition and Food Production in Belgium. The link to the poster is http://www.kaowarsom.be/documents/Conference_Posters/Ebika.pdf

Training in UK: I attended two training (phylogenetics and statistics) in Edinburgh. The phylogenetics training was held at the Royal Botanic Garden Edinburgh and was very important for my career to understand molecular approaches used in almost every scientific papers being published nowadays. This will also help me in the future to answer some of my research questions (e.g. the molecular approach can help solving issues on some *Ficus* species that show a considerable variation in morphology). The training on basic statistics was organised by the Biomathematics and Statistics Scotland. This training enabled me to know what I should do before planning any research and to consult a statistician before carrying out research.

Design and creation of a web output: a website is one of the best way of sharing information. In the Republic of Congo. For my country, information on biological diversity in general and plants and fungi in particular is rarely available online. This led me to create a website on plants and macrofungi using the Scratchpad managed by the Biodiversity Informatics Group of The Natural History Museum London. The website that I created is called Initiative des Champignons et des Plantes du Congo (Initiative for Mushrooms and Plants of Congo): http://icpc-congo.myspecies.info/

Submission of first manuscript: This first manuscript dealt with ecological aspects of *Ficus* species based on data that I collected in 2010 and 2013. The title of the manuscript is: “Hemi-epiphytic Ficus in a Congolese forest”. Writing this manuscript was my first ever experience in writing a scientific article. After completing and submitting this manuscript, I am now preparing a second manuscript which I plan to submit before the end of 2014.

Research trip to Congo: In November I was offered the opportunity to travel to an area adjacent to Nouabalé-Ndoki National Park in the Republic of Congo and work with David Harris and a colleague, Jefferson Hall from the Smithsonian Tropical Research Institute in Panama. During this visit I was able to continue to expand my knowledge of plant taxonomy and use new techniques for the inventory of forest plant biodiversity.

- What have been the main achievements of your fellowship? Key documents should be annexed to this report.

My main achievements have been.

1. Identification of specimens.
2. Design of website.
3. Submission of first manuscript.
4. Preparation of second manuscript.
5. Presentation of poster at an international conference in Brussels.

3. Outcomes, lessons and Impact

- Do you feel that the work undertaken during your Fellowship has improved skills that are relevant and important for your work in your organisation? How are you planning to apply those skills in future work?

Yes, the things I did during my fellowship improved many skills which are important to my organisation. I have used many of the skills I learnt in my previous role in the Darwin project to support the work of my organisation. I have made a big effort to pass on what I have learnt to my colleagues in my country. I will continue to do this with the skills which I learnt on this Fellowship.

- What arrangements have been made for your future involvement, what more could be done, what discussions have taken place with your original employer to ensure that your new skills are utilised?

I plan to have future involvement by applying for PhD training in the UK with the long-term goal of teaching back in the Republic of Congo. I have met with my employer and discussed changes to my work which will ensure my new skills are utilised. My employers are very appreciative of the skills and knowledge and how I can pass them onto colleagues.

- Has the Fellowship helped to improve your capacity to solve practical problems related to the sustainable use and/or conservation of biodiversity in your country?

Yes, the fellowship has improved my capacity to solve problems in my country. For example, I am better at identifying plants and fungi and learnt several new techniques. I was able to set up and design a web page which can be done from my country. The information which my colleagues and I can put up on the web will help to solve the problem of identification of plants and fungi in my country. To practice sustainable use and conservation we have to know what species are being used and conserved. In addition, improved understanding of scientific writing has allowed me to start submitting scientific articles. Without scientific knowledge, sustainable use and conservation are difficult to achieve.

- Have you had the opportunity to make contacts with other UK biodiversity institutions, intergovernmental organisations, NGOs or the private sector during your fellowship? Will these contacts be useful for your future work, and how are you planning to maintain them?

I was able to make contact with mycologists at the Royal Botanic Garden, Kew. I also set up plans for future research with ecologists at the University of Edinburgh. I maintained contact with UK based Wildlife Conservation Society staff during my time in Edinburgh. I also made very useful contact with an educational provider in the private sector. I also made significant international contacts during my time in Edinburgh, by visiting Belgium, joining a research trip to Congo and meeting visitors at the Royal Botanic Garden Edinburgh. I will be maintaining these contacts by regular emails, joint publications, joint research proposals and future grant applications.

- Any other issue emerging from your experience as Darwin Fellow that you would like to raise, or suggestions for improvements to the Darwin Initiative Fellowship scheme.

Due to an opportunity to make a research trip to Congo in November 2013, and the cost of travelling to Belize, I had to make some changes to my programme. It was very helpful to have the flexibility to allow this to happen.

From my country, it is quite hard to reach a good standard of English so I appreciated the part of the budget which helped with my scientific writing in English.

Appendix 1. Manuscript of article submitted to Plant Systematics and Evolution.