



Darwin Initiative Final Report

To be completed with reference to the Reporting Guidance Notes for Project Leaders (<http://darwin.defra.gov.uk/resources/>) it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Darwin project information

Project Reference	19-004
Project Title	Building Capacity of the Next Generation of Liberian Conservation Professionals
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Partner Institution(s)	University of Liberia Forestry Development Authority Forestry Training Institute Zoological Society of London
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Project Leader Name	Dr. Mary Molokwu-Odozi / Dr. Kathryn Phillips
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1 Project Rationale

Liberia, located on the west coast of Africa, covers the largest sections, about two-thirds, of the most intact remaining blocks of the Upper Guinea Rainforest Ecosystem (Fig. 1). While rich in endemic and rare plant and animal species of global conservation importance, Liberia's forests, like the rest of the Upper Guinea Forests are disappearing rapidly. Extensive deforestation has rendered this important biome seriously fragmented, with forested landscapes dotted by a mosaic of forest and agricultural/cultivated land. Liberia has several important and key biodiversity areas, making it a biodiversity hotspot (Myers et al. 2000). The total forested area of Liberia has been estimated to be approximately 4.3 million hectares of lowland tropical forest, and the most intact forest sections provide critical habitat for threatened populations of many animal species, including the pygmy hippopotamus (*Choeropsis liberiensis*) and West African Chimpanzee (*Pan troglodytes verus*).

Some of the last significant populations of these species thrive in the Sapo National Park (SNP), Liberia's foremost-protected area and only national park. SNP is located within one of the three most intact blocks of the Upper Guinea forest and remains one of the single-most intact forest ecosystems in Liberia (Fig. 2). New species are still being discovered in the Park, with 15 new plant species found in one botanical survey alone in 2010 (Vogt 2011). After 14 years of civil war, there has been a notable increase in the magnitude of anthropogenic activities around the park. Consequently, these forests now face threats such as logging, mining and agro-industrial crops, compounded by low institutional conservation capacity leading to poor forest governance. Although illegal miners were evacuated from within SNP after the war, recently, between 2014 and 2016, mining activities outside the park boundaries are intensifying and starting to encroach into the park (FDA pers. comm.); hunting has increased and agricultural intensification in the park's buffer zone threatens important biodiversity (Freeman 2014). This may be attributed to the limited frequency of patrolling by park rangers caused by limited logistical and manpower resources.

The Forestry Development Authority (FDA), the main government institution responsible for the conservation and utilization of Liberia's forest resources lost much of its institutional capacity during the war, and to date is faced with an aging workforce. As a result of the civil crises, little opportunity existed in-country for building the capacity of natural resource managers in conservation as infrastructure for research and education were destroyed and trainings continually disrupted. The curriculums of institutions of learning were outdated, for example, the University of Liberia Forestry curriculum dated as far back as 1956 when it was first developed. The curriculum also did not contain any topics in conservation and students had very little opportunity to gain practical experience in conservation and ecological research, while lecturers lacked the technical skills/knowledge to teach conservation issues or supervise research (Churchyard 2012). As such, very little is known about Liberia's biodiversity, while the rate of deforestation continues to rise.

In 2011, FFI conceived a project to build the capacity of Liberia's natural resource managers in conservation. A scoping mission was conducted with funds from the UK Government's Darwin Initiative and a full project was developed and commenced in 2012 after further funding was received from the Darwin Initiative and the US Fish and Wildlife Service (USFWS) as well as Basel Zoo, for the construction of a research centre. Both in-country and international partners were identified and involved in project planning and implementation (see section 3).

The project aimed to build the capacity of Liberia's forestry professionals and students in conservation through 1) improvement of the forestry curriculums of Liberia's main academic institutions with the inclusion of conservation-based modules at international standards; 2) establishment of a centre of excellence for practical field training in conservation and ecological methods; 3) developing collaborations that will foster knowledge transfer and mentorship with international researchers. The Sapo Conservation Centre (SCC) located in the headquarters of the Sapo National Park in the south east region of Liberia (Fig 2) was established to act as a focal point for biological and social research in the south east, generating baseline information on Liberia's biodiversity and threats. It is also anticipated that the centre's research activities will feed directly into the poverty reduction strategy of the Liberian Government through the generation of urgently needed information on local livelihood strategies and sustainable utilisation of natural resources.

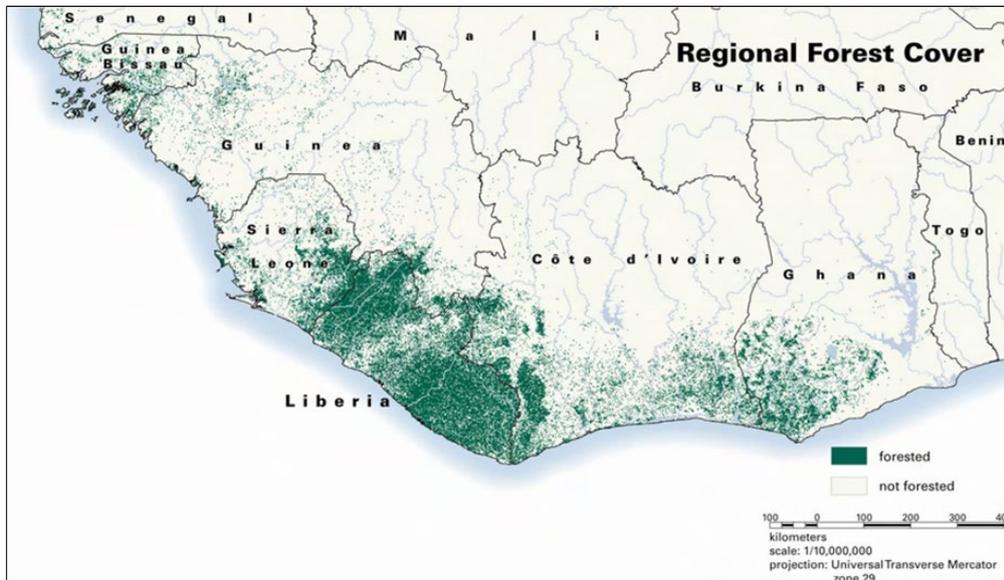


Figure 1: Map showing the Upper Guinea Rainforest in West Africa

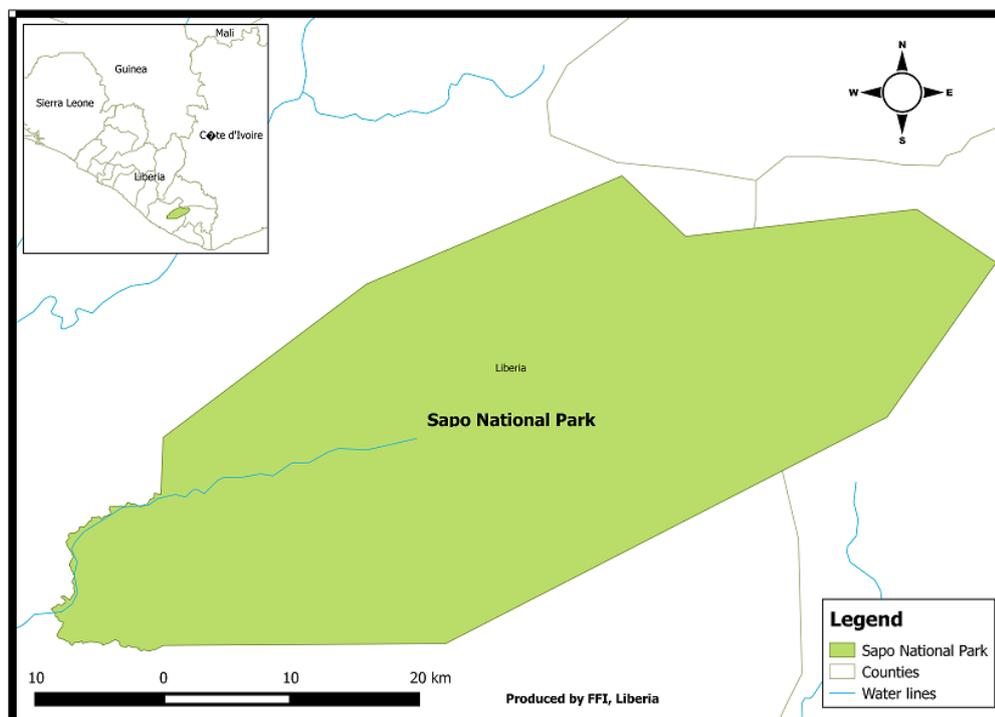


Figure 2: Map showing the Sapo National Park

2 Project Achievements

2.1 Outcome

Purpose: To build capacity in participatory conservation and applied research to international standards in the next generation of Liberia's conservation professionals through enhanced university education, practical field experience and mentoring from international researchers, whilst simultaneously generating baseline information on Liberia's biodiversity.

Despite facing setbacks as a result of, the Ebola outbreak in Liberia, among other issues, the project did achieve its intended main outcome. Three sub-outcomes were proposed for the project and all were successfully achieved.

1) **Enhancing capacity for conservation education;** 12 conservation-focused modules, instead of the 6 modules originally planned, have been created and accepted into the curriculum of the University of Liberia (UL) as two biodiversity conservation courses of 6 modules each. This has led the university to creating an option for specialization in conservation under the Bachelor of Science (BSc.) degree in Forestry. Several conservation topics were also inserted into the curriculum of the Forestry Training Institute (FTI). A 'train the trainer' approach for academic instructors was developed. The outcomes of the training programme are outlined below.

2) **Development of practical skills for conservation;** through the establishment of a conservation learning centre, the Sapo Conservation Centre, in Sapo National Park, capacity of academics and students from UL, FTI and Nimba County Community College (NCCC) and Forestry Development Authority (FDA) employees was built in soft skills in addition to technical and practical skills, e.g., statistics, presentation skills, proposal and scientific writing. Also, Sapo community members have been trained in basic guiding skills, and the FDA biomonitoring programme that was discontinued due to lack of funds was recommenced during this project. Trained FDA rangers and community auxiliaries have collected monitoring data since 2014.

3) **Fostering of international research collaborations;** By harnessing expertise from UK institutions, such as ZSL and University of Cambridge and regional institutions such as the A.P. Leventis Ornithological Research Institute, Nigeria, seven, interns were supported through successful placements, and the first Liberian to complete an MSc in Conservation Biology at APLORI was hosted at the SCC.

The following outcome level indicators were identified during the planning of the project and remained sufficient for measuring the achievement of the project outcomes throughout the project:

- 1) Number of students participating in new conservation modules and field courses.
- 2) Number of students choosing conservation-related careers
- 3) Number of research projects conducted at SCC.
- 4) Application of learning by FDA course attendants during the course of their work

Several students who participated in project related events (i.e. field courses, workshops, student exchange programme, internships and seminars), were fully engaged during and after these events and have continued to participate in activities contributing positively to biodiversity conservation. For example, students from both the University of Liberia (UL) and Stella Maris Polytechnic (SMP; an institution included in the project only recently in 2015) have organized themselves into biodiversity clubs, and have started to seek funding for field trips and other conservation-related activities. The combined number of students from both institutions forming a part of these clubs is well over 750.

To demonstrate these points, the following are examples of cases where partner interaction with the project has led to improved effectiveness and self-sufficiency, achieving the main purpose of this project:

- Two biodiversity conservation courses made up of 12 modules have been created for the UL Forestry curriculum. This was achieved through a highly participatory process and series of meetings with lecturers and university authority. However, the courses will not be taught until the end of 2016 when the newly revised curriculum will be implemented (see section 2.3 for details). In the meantime, the modules have been taught to lecturers, students and interns during seminars, workshops and field courses.
 - Five seminars were held for students of the UL, FTI, NCCC and a newly added institution, Stella Maris Polytechnic (SMP). The seminars ranged from biodiversity projects implemented by international partners and project partners, to the conservation modules developed by FFI, which included both theoretical and practical fieldwork. The conservation modules have been incorporated into the curriculums of the UL and FTI. Over 300 students participated in seminars between 2013 and 2015.

- Six academic instructors and 11 FDA staff (Park Biologists and rangers) from six protected and proposed protected areas across Liberia - SNP, Lake Piso Multiple-Use Reserve (LPMUR), Grebo National Forest, East Nimba Nature Reserve, Wonegizi Proposed Protected Area and Gola National Forest - as well as two staff of local NGOs, Society for the Protection of Nature in Liberia (SCNL) and Farmers Associated to Conserve the Environment) and three interns participated in a number of field courses held during the last three years with co-funding from USFWS and Arcus Foundation. These include two training-of-trainer (TOT) Ecological Sampling field courses and a biostatistics course held for lecturers and FDA staff, as well as a camera trapping and bird identification field course held for forestry professionals and rangers engaged in biomonitoring and biodiversity surveys. Participants showed significant improvement in species identification (following the camera trap course evaluation) and improvement in practical field techniques (following participant evaluation after the ecological sampling courses).
- 22 undergraduate students in total also participated in the field courses held under the auspices of this project, including an Ecological Sampling course and a camera trapping and bird identification course. During the ecological sampling course students produced reports from mini-projects conducted after a two-week training. This was new to the students as they have never in the past engaged in independent biodiversity surveys and reporting.
- 10 locals from communities around SNP were trained in field guiding and navigation with co-funding from Arcus Foundation and USFWS during this project. Out of these, three supported a MSc. Research student project after their training and one of them is currently supporting camera trapping surveys in SNP. Another trained community field guide among the 10 participants is now supporting the Wild Chimpanzee Foundation (WCF) in Grebo National Forest in biodiversity surveys.
- Showing a discernible increase in their ability to effectively deliver training on conservation issues, university instructors and FDA staff trained during the 'training of trainer' workshops successfully supported the training of students and community members – both in theoretical issues and practical fieldwork.
- Under a collaboration between the Sapo Conservation Centre (SCC) and a regional institution located in Nigeria, the A.P. Leventis Ornithological Research Institute (APLORI), Benedictus Freeman, a graduate of the University of Liberia, successfully applied for and obtained an MSc degree in Conservation Biology from APLORI. He successfully conducted his thesis research on '***Bird-habitat relationships and anthropogenic threats in and around Sapo National Park***' and is now supporting the Darwin project as Technical Assistant for Research and Education. Benedictus is now developing his research into a manuscript to be submitted to a peer-reviewed journal and also supporting the training of university students through the seminars.
- The biomonitoring programme successfully completed two phases in 2014 and 2015 and 18 trained biomonitoring personnel – three FDA staff and 15 community auxiliaries have independently collected data on important species and threats with minimal supervision.
- Under the internship programme started during this project, seven graduates - six from the UL and one from the Nimba County Community College (NCCC) have participated. Although the internship training programme was not in the original project plan, it has proved immensely success in training the next generation of Liberia's conservation leaders.
 - In 2012 four UL graduates participated in a five-month internship program. During this period, they received over 30 hours of lectures, with topics including: Introduction to Conservation Biology, Biodiversity, Species and Habitat Management, Protected Area Management, Payments for Ecosystem Services, Climate Change, Community Forestry and Proposal Writing. At the end of their internship, they had produced a proposal aimed to create awareness on the Illicit hunting of protected species in SNP. In the last four years, all four interns gained

- employment in two natural resource companies ArceloMittal and Golden Veroleum (GVL) as Biodiversity Officers and have remained in the conservation sector.
- Another UL graduate, John Kannah, recruited as an intern in 2013, was supported under this project with co-funding from Henry Doorly Zoo and USFWS. He implemented the proposal developed by the previous interns, conducting a project entitled '**Establishing the level of Conservation Awareness in Sapo National Park, Liberia**'. He created awareness among school children on protected species, particularly the Western chimpanzee and pygmy hippopotamus and investigated the level of awareness of communities of the protected species and national park law. He also participated in a project design and proposal development workshop, organized by FFI and the Conservation Leadership Programme (CLP) in 2014, and successfully obtained a GEF Small Grant of \$20,000. With the grant, he has started his own NGO the Liberian Endangered Species Association (LESA) aimed at protecting endangered species in the Grebo National Forest, southeast Liberia. He went on to attend the Tropical Biology Association course in Tanzania in August 2014 after his training and has recently gained admission to a university in Taiwan for an MSc. Programme in climate change. In a letter to the project coordinator, John stated, '**As we start the implementation of our (LESA's) first project, we will like to thank you for the valuable training and opportunity you gave us. We couldn't have come this far without the trainings and opportunity**'.
 - A Political Science graduate of UL Ernest Waylee, recruited as an intern with co-funding from the CLP completed his internship in 2015 and implemented a project titled "**Gauging the impact of Conservation Education: An evaluation of conservation capacity building projects in Liberia**". During the internship, Ernest attended the Conservation Capacity Conference in Nairobi where he presented a poster on his project and attended several biodiversity conservation workshops. After the internship Ernest gained employment at the Environmental Protection Agency (EPA), inspired by the training he received during his internship and determined to develop his knowledge and skills further and contribute professionally to conservation as a social scientist.
 - James Gbeaduh, a graduate of NCCC recruited in February 2015 with co-funding from USFWS and CLP is currently supporting the biomonitoring transect and camera trapping surveys. One of the challenges identified after the 2014 biomonitoring programme was that some of the biomonitoring teams struggled with data recording. James now works alongside the biomonitoring coordinator to provide technical backstopping, including support and continuous guidance in data recording. He participated in two camera trap courses in 2015 and has supported two phases of camera trapping survey carried out in SNP in the same year. He is currently analyzing camera-trapping data for 2015 with support from ZSL and will complete his internship in May 2016. He is also continuing the school conservation education program started in 2014 around the Sapo National Park, to raise awareness on protected species and national park laws among school children.
- The Technical Assistant for biomonitoring, Matthew Varney and an intern presented two posters at the ERT Conservation Capacity Conference, Nairobi, Kenya, in July 2015, on the topics "*Strengthening local capacity in Post-conflict Liberia: Case study of the Sapo National Park Biomonitoring Programme*" and "*Gauging the impact of conservation education: an evaluation of Conservation Capacity building Projects in Liberia*".
 - Benedictus Freeman, the Technical Assistant for Research and Education also made an oral presentation at the 27th International Conference on Conservation Biology (ICCB-ECCB) in Montpellier, France in August 2015. He made a poster presentation of his MSc. thesis '*Bird-habitat Relationships and Anthropogenic threats within and around the Sapo National Park*', and on behalf of the project coordinator Dr. Mary Molokwu made an oral presentation on '*The importance of the Sapo Conservation Centre to the Biodiversity and People of the Sapo National Park*'. The project coordinator and Liberia Programme Manager also made poster presentations of the project at the Bristol Zoo Symposium in the UK in February 2015.

2.2 Impact: achievement of positive impact on biodiversity and poverty alleviation

As it relates to biodiversity and poverty alleviation, the long-term aim of the project was to provide a foundation for improved conservation understanding and governance in Liberia, incorporating critical environmental and livelihood learning, whilst enabling improved understanding and knowledge of the rich biodiversity of SNP.

Throughout, the project focused on building national capacity to ensure local leadership in implementing participatory conservation interventions that incorporated the needs of communities. With the collaboration of the national partners and training and incorporation of national researchers on the project, the effective participation of community members was ensured. A number of our project activities contributed directly to biodiversity conservation. These included research and outreach activities and the SNP biomonitoring programme. A few of our project activities also contributed both directly and indirectly to poverty alleviation (see section 4 for details)

Relating to the project output “Improved knowledge of the biodiversity of Southeast Liberia through increased collaborative research and continuation of SNP bio-monitoring programme” (see logframe), the following output indicators were identified during project planning:

- i. No. of research projects focussed on biological diversity in south east Liberia increased, including proportion produced by Liberian nationals.
- ii. Continuation and growth of SNP bio-monitoring programme

Research projects by Liberian nationals

The MSc. thesis research of a Liberian student, comparing bird diversity between SNP and its buffer zone updated the bird list of SNP from 125 to 183 and obtained density estimates for nine birds of global conservation concern. The research project also identified major anthropogenic pressures within and around SNP.

An intern also carried out a bushmeat consumption survey and conservation awareness project from March – June 2014 in SNP. The project involved investigating knowledge of protected species and Liberian wildlife laws among seven communities around SNP. There was evidence that communities around the Sapo National Park were to a great extent well informed about the wildlife laws and protected species, particularly those communities closest to the park. All respondents in the communities near the SNP headquarters (Zone 1) could name more than one wildlife law and protected species. In other communities adjacent to the park in zones 2 and 3, up to 75 % and 59.5 % respectively could correctly identify a protected species. However, there was a much lower perceived knowledge of the wildlife laws in these communities compared to those closest to the park headquarters in Zone 1, where the presence of the FDA is strongest.

A conservation education programme was also carried out in eight schools around SNP and 460 children of ages 6-12 were trained. The programme involved training in biodiversity conservation, protected species (with focus on West African chimpanzee and pygmy hippopotamus) and the wildlife laws of Liberia. Before and after the training school children were asked to make a sketch of their perception of nature. School children showed some level of improvement in their perception of nature after the training (see image in Annex 7).

Continuation and growth of the biomonitoring programme

The biomonitoring programme, which was established for the long-term monitoring of important species and threats within SNP commenced in 2014 and has continued to date. However, in July 2014 biomonitoring was brought to a halt due to the Ebola outbreak and after recommencing in February 2015 was interrupted again in July 2015 due to an attack by illegal miners on the biomonitoring team. The attack came in the wake of increasing signs of mining, hunting and other anthropogenic activities inside the park and in the buffer zone, including gun shells, hunting trails and mining camps which also served hunters. Also, a hunter was caught with the black and white colobus monkey, a protected species (IUCN threat category – vulnerable), during one of the biomonitoring surveys.

A total of 39 species (30 mammal, 8 large birds and one invertebrate) were recorded during biomonitoring carried out in 74 (2014) and 62 (2015) out of 90 transects across the 180,365 ha of the SNP. Also several important species were caught on camera trap, including three endangered species - the pygmy hippopotamus, western chimpanzee and Jentink's duiker as well as other threatened species such as the sooty mangabey, leopard, African elephant, zebra duiker and the white-breasted guinea fowl. A video footage of a herd of 11 elephants was also recorded for the first time in SNP.

Data collection and analysis are still on going. However, preliminary results from the biomonitoring survey indicate that anthropogenic threats may in fact have a greater impact on the Sapo NP and species than previously thought. In 2014, preliminary data analysis indicated high abundance of primates in the western (Zone 1; park headquarters) and northern (Zone 2) parts of the park. Conversely, the eastern part (Zone 3) recorded fewer numbers of primates but more duikers compared to the other zones. A similar pattern was observed in 2015 for most of the species recorded (see Annex 7 for graph showing relative abundance of primates, duikers and other large mammals across the three zones). The observed disparity in primate-duiker distribution across SNP may reflect species-habitat relationships, as Zones 1 and 2 are relatively intact forest providing important habitat and food resource for primates compared to zone 3, which is mostly secondary forest and farmland and may provide important habitat requirements for herbivores. Cultural taboos may also play a role and anthropogenic activities may directly or indirectly affect species numbers and distribution. The biomonitoring programme reveals ecological relationships and threats prevailing in Sapo, therefore providing much needed baseline information setting the stage for novel ecological research and evidence-based conservation in SNP.

2.3 Outputs

The project achieved its intended outputs, as presented below:

- 1. Curriculums of Liberia's premier teaching institution updated with conservation-focused teaching modules, in line with international standards. Topics to include introduction to conservation biology, rights-based governance approaches, sustainable livelihoods and climate change.**

Indicators:

1.1) 6 academic modules written and formally included in the curriculums

Based on recommendations from a knowledge and skills gap analysis of conservation education conducted for partner academic institutions, 12 modules (1 hour each) were subsequently created in partnership with lecturers under two courses - Biodiversity Conservation I (An Introduction) and Biodiversity Conservation II (Species and habitat management; see Annex 7) By end of 2013 they were successfully incorporated into the curriculum of the Forestry Department, University of Liberia (UL), which was under review, and developed into two semester three-credit courses in the 3rd and final year of the Forestry degree program. This was more than the originally proposed 6 modules, which were expected to be inserted as topics under various related forestry courses. The acceptance of the university to have our modules as stand-alone courses is a very important achievement and reflects the success of this project, even at such an early stage. NCCC and FTI, offering lower level programs, have selected topics under each course, to be taught as two-credit and one-credit courses respectively.

1.2) A minimum of 6 lecturers trained in module implementation

Between 2012 and 2015, a total of 27 lecturers involved in module development received training during several theoretical workshops, including "Introduction to Conservation biology" (14 academic instructors), "Effective Communication" (14 instructors), "Proposal writing 1 & 2" (14 instructors), Data analysis (2), Ecological Sampling for Conservation' (11 instructors) and Forest Governance (14 instructors). Six lecturers went through an intensive series of field courses and among these, two lecturers successfully co-facilitated the student field course in February 2014.

1.3) Accompanying educational packs produced for teachers and students

12 information packs have been developed for the 12 conservation modules created for the two biodiversity conservation courses. These include hand-outs with a list of reference books and articles and PowerPoint slides. Lesson plans are also being prepared to serve as guide for the teachers.

Means of verification:

Course modules and educational packs– information packs drafted for 12 modules (hand-outs, lesson notes, PowerPoint presentations); meeting reports and emails.

Reports – reports of seven theoretical ‘training-of-trainer’ (TOT) workshops and two TOT field courses available, minutes of curriculum development meetings are also available.

2. Capacity of Liberian students and FDA employees in field research methods and conservation issues increased through residential courses at SNP hosted by SCC

Indicators

2.1) Financially sustainable and effective functioning of newly established SCC

Building construction commenced in June 2012 and due to bad road conditions (building materials were transported to Sapo from Monrovia) and the impacts of the rains, construction was not completed until 2013. A project vehicle, a Land cruiser was also purchased in 2012. However, regrettably, the vehicle was stolen at gunpoint on the 14th of January 2013 while it was taking the building contractor and materials to Sapo. This further contributed to delays in the construction of the centre that resulted in training activities commencing later in 2013. Two buildings, an office building and a manager house, plus a campsite (16-person tent capacity; see Annex 7) were completed and launched in June 2013. The centre has so far hosted six residential courses. Four Liberian staff were employed - a Caretaker, Gardener, Technical Assistant for Biomonitoring (all based at SCC), and a Technical Assistant for Research and Education based in Monrovia and supporting development and teaching of the academic modules. The business plan drafted in Year 1 has been revised after two workshops on Financial Sustainability were held for the SCC team and is now being finalized.

2.2) SCC hosts minimum of three 5 day workshops per year.

In total six residential field courses were held at SCC in the Sapo National Park (SNP) between 2013 and 2015, two 5-day courses on Ecological sampling for trainers, one 10-day Ecological Sampling course for students, a five-week course on data analysis for lecturers and FDA staff and two biomonitoring refresher courses. One main challenge encountered with hosting courses at SNP is the deplorable condition of the roads (see Annex 7). Hence, it was impossible to hold courses there during the rainy season. During this period, residential courses were hosted at the Lake Piso Multiple-Use Reserve (LPMUR) in collaboration with a local NGO (Farmers Associated to Conserve the Environment, FACE) that have very kindly offered their accommodation facilities, with additional tents provided from the SCC. A 5-day residential fundraising and proposal writing workshop for lecturers, civil society and FDA staff and a 5-day camera trapping and bird identification field course held for student and forestry professionals were hosted in 2014 and 2015 respectively.

2.3) Capacity of a minimum of 60 UL students, 60 FTI students and 30 FDA employees built in field research methods and conservation issues

The 12 academic modules were successfully inserted in to the UL Forestry curriculum in 2013. However, the Forestry curriculum was not finalized until 2015 and the teaching of the modules will not commence until beginning of the next school session at the end of 2016. The delay in finalizing the curriculum was partly due to long bureaucratic procedures and partly to a six-month closure of academic institutions in 2014 as a result of the Ebola crisis; in anticipation of the start of implementation of academic modules, various seminars have been organized and over 300 students of the three partner institutions (UL, FTI, and NCCC) as well as a new institution included in 2015 (Stella Maris Polytechnic). The seminars ranged from topics in the conservation modules to research projects carried out by researchers and NGOs in Liberia. Students have been inspired by these trainings and some have established conservation clubs, while others have shown interest in applying for the internship programme.

During the first student field course on “Ecological Sampling” hosted at SCC, 11 students carried out independent mini projects, produced scientific reports and made oral presentation of their work to their colleagues (see Annex 7 for report). This was the first time students would learn about developing a scientific hypothesis, describing scientific methods and analyzing results. Another 11 students were trained during the second field course on camera trapping and bird identification, and students learnt to mount camera traps in the field and retrieve data, something that they would not normally have learnt in the absence of this project. In addition to academic instructors trained, over 40 participants from FDA, EPA and several civil society organizations as well as interns participated in various training workshops. In total 26 FDA staff have been trained during both theoretical and practical field courses. The impact which the trainings had on FDA staff and these other participants was similar to that experienced by the student participants.

Means of verification:

Monthly and annual reports produced by SCC, Sustainability plan; minutes of SCC steering committee – annual report, two student field course reports and minutes of meetings are available.

Attendance lists; Pre- and end-of-project questionnaires distributed to course attendants; Accompanying educational packs produced – training workshop reports, audio CD of project coordinator’s presentation and feedback forms and recorded audio interviews are also available.

3. Improved knowledge of the biodiversity of Southeast Liberia through increased collaborative research and continuation of SNP bio-monitoring programme.

Indicators

3.1) No. of research projects focussed on biological diversity in Southeast Liberia increased, including proportion produced by Liberian nationals

An international student Thomas Churchyard, from the University of Cambridge Conservation Leadership Programme at the start of the project in 2012, conducted an MPhil research project on knowledge and skill gap analysis, with regards to conservation training for Forestry students. Thomas’ report informed the development of the conservation module content. Two research projects by Liberian students in 2014, one on avian diversity of SNP, which updated the bird list of SNP, and another on bushmeat consumption and knowledge of SNP’s protected species, which created conservation awareness among school children around the park (see Annex 7 photos and results) followed. A CLP intern also in October 2015 completed a research project evaluating the impact of conservation capacity building projects in Liberia, and results are still being analysed. A series of presentations were made by the above Liberian researchers at the August 2015 steering committee meeting after they had made similar presentations at international conferences. The chairman of the steering committee commented that this was the first time he had seen independent research work carried out and presentations made ‘confidently’ by Liberian nationals.

3.2) Continuation and growth of SNP bio-monitoring programme

Two 6-month phases of biomonitoring were successfully completed in 2014 and 2015. The third year of biomonitoring is currently on-going. Three FDA staff and 15 community auxiliaries were trained during two refresher courses in 2014 and 2015. Two sessions of 30-day camera trapping surveys were also carried out in 2015, and photos and videos of important species were recorded, including a herd of 11 elephants, which is a rare sight in the forest of Liberia. Understanding the value of biodiversity and seeing first-hand the non-consumptive value of biodiversity as well as the need to protect their heritage has inspired the biomonitoring team members most of whom were former hunters. Their motivation was such that even during the Ebola crisis at the beginning of 2015, guarded with Ebola preventive materials, they went back to work. Photos of some threatened species caught on camera-trap are shown in Annex 7.

3.3) No. of community members trained in basic guiding skills

Ten community members were trained during two workshops in 2013 and 2014 and these community members have started to support researchers as field guides and have earned income from their work.

Means of verification:

Research reports/publications / 3.2 Annual SNP bio-monitoring report / 3.3. Monthly and annual project reports – Two Masters Theses and one research reports as well as two biomonitoring survey reports are available. Videos and photos from the camera trapping survey are also available.

4. Research findings disseminated through local and national media, scientific publications, a dedicated webpage and reports

Indicators

4.1) A minimum of 2 national and 1 international press releases and/or radio interviews to be released per year

A news feature on the project's inception workshop was aired on local television and three news features, one on the Effective Communication workshop and several on the opening of the Sapo Conservation Centre were published <http://www.fauna-flora.org/news/sapo-conservation-centre-opens-in-liberia/> and see Annex 7). An article was also published in the SCB Africa Newsletter Africa Conservation Telegraph on 'The importance of the Sapo Conservation Centre in Liberia'. One interview of the project coordinator by FFI Friends was granted for the May Edition of the FFI Friends Newsletter and the project coordinator participated in a popular radio talk show to talk about conservation. The success of the project was further recognised when the project coordinator was selected as a finalist of the prestigious Tusk Conservation Award for this project <http://www.tuskawards.com/blog/dr-mary-molokwu-liberia>; <http://www.fauna-flora.org/news/dr-mary-molokwu-odozi-shortlisted-for-prestigious-tusk-conservation-award/>. Several news articles and video recordings of the award were published online. Also see Annex 7 for photos.

Means of verification:

Monthly and annual reports produced by SCC – Annual reports are available;

National and International publications All press releases, video recordings and news articles are available.

Research reports/publications posted on www.liberianfauna-flora.org – a few reports were posted on the website. However, it was deactivated in 2014/2015 as we were migrating to a new web-host. It has now been reactivated and reports of project activities will be posted. A Facebook page has also been created for the project, with over 100 'Likes', at <https://web.facebook.com/sapoconservationcentre>.

3 Project Partnerships

Five main partners – three in country and two UK partners collaborate on this project. During the first year of the project, the partners - the University of Liberia, the Forestry Development Authority (FDA), the Forestry Training Institute (FTI), the Zoological Society of London (ZSL) and FFI were incorporated and a Memorandum of Understanding (MOU) was signed. All three in-country partners were involved in the development of the project and have been fully involved in the implementation from inception. The responsibilities of all three in-country partners as stipulated in the MOU include providing technical support in project design and implementation as well as staff time and use of facilities where possible. ZSL provided resource support and technical expertise in the development of the field courses and research program. All three in-country partners are also major beneficiaries to the project in the form of training of personnel and resource support. FFI coordinates the entire project, provides resource support and technical expertise. All partners are required by the MOU to generate funding for their activities where possible. However, FFI has been the main fundraising partner for the project.

A partnership was also formed with the University of Cambridge that includes provision of technical expertise where required and with the A. P. Leventis Ornithological Research Centre (APLORI), Nigeria an internationally recognized institution promoting ornithological research in West Africa and offering a Masters program in Conservation Biology. An MOU was signed with the latter that includes an agreement for the training of one Liberian student yearly on a full Leventis Scholarship and the promotion of ornithological research in Liberia. A Liberian student has now completed the MSc course and as part of his studies conducted a survey of birds of Sapo National Park and updating the SNP bird list.

The five main partners and other stakeholders together form the project steering committee with the University of Liberia as chairman of the committee and the FDA as vice-chair. The leadership of the committee and head of the UL Forestry Department was instrumental to the early insertion of the FFI academic modules in the Forestry curriculum. Other members of the steering committee include the Environmental Protection Agency of Liberia (EPA), the focal point for the Convention on Biological Diversity (CBD) in Liberia, Liberia's Ministry of Internal Affairs (MIA) and the local community, Jalays Town, where the centre is situated. The Steering Committee meets at least three times a year. Since the project's inception they have had physical meetings on nine occasions and kept active email correspondence when necessary. The responsibility of the committee is to advise, monitor and support the on-going development of the project and oversee the affairs of the SCC. Several other stakeholder institutions including the Society for the Conservation of Nature in Liberia (SCNL), Conservation International (CI), Liberia's Ministry of Education (MoE) and Ministry of Agriculture (MoA), United Nations Development Programme (UNDP) and US Agency for International Development (USAID) serve as observers on the committee. Impressed by the organization of the conservation seminars for their students, the Stella Maris Polytechnic (SMP), a technical school in Monrovia has expressed its interest in becoming involved with the SCC.

Government institutions on the committee have helped to promote project outcomes that impacted on policy at local, national and international levels. For example data from the SNP biomonitoring programme was presented by the FDA at the African Elephant Coalition meeting in Cotonou, Benin Republic (see section 4 for more details). The committee also ensures that project activities adhere to standards of best practice, both locally and in a wider context. For example, the FDA and EPA conducted an Environmental Impact Assessment (EIA) before construction of the Centre commenced. The mix of different stakeholders has ensured that the project's scope aligns with the requirements of the various stakeholder groups.

Keeping all members of the partnership fully engaged through the life of the project has required a certain level of dexterity in dealing with partner's concern. However, allowing all partners to input into the project development, seeking their particular expertise when required, and providing accurate and updated information and report on activities implemented in a timely manner has helped in that regard. The launch of the Sapo Conservation Centre (SCC) was a fully participatory event as all members planned the event together and contributed both financially and in kind to making the launch a huge success (See Annex 7 for press release and photos of the event).

Additionally, project partners are encouraged to propose ways in which the project could increase the delivery of its outcome of biodiversity conservation even beyond the life of the project, giving them a sense of ownership and promoting more active participation. To exemplify this, during one of the steering committee meetings held at the Sapo National Park, the community Paramount Chief reported the increasing cases of crop raiding by wild animals. This led to the development and submission of a project proposal aimed at understanding the extent and impact of human-wildlife conflict (HWC) around the park. The success of the proposal application to the US Fish and Wildlife Service was subsequently communicated to the local people. This has increased the community's confidence in the project, but also their confidence in their Paramount Chief who represents the community on the steering committee. The chief reported, "***The successful development of the new project addressing the problem of crop-raiding has led my people to have more faith in me. They are now confident that I am representing them properly on the steering committee and not merely attending meetings and taking up space***". This we believe will garner more support from the community for the project and for conservation around SNP.

A major success of this project and its steering committee is that the committee has now been adopted as the national committee for conservation research and capacity building, while retaining its oversight of the SCC. It will now be known as the "***Sapo Conservation and National Capacity Building Committee***". The partners will therefore undoubtedly keep in touch as becoming a national committee now makes it a nationally driven body that will continue to function beyond the life of the grant. The August 2015 meeting held discussions to prioritise

conservation action, informed by Liberian-led research on biodiversity and the biomonitoring programme, presented entirely by Liberians following international presentation of their work.

4 Contribution to Darwin Initiative Programme Outputs

4.1 Project support to the Conventions (CBD, CMS and/or CITES)

This project was aimed at strengthening the capacity of Liberian nationals in conservation, thereby supporting the National Government of Liberia in implementing Articles 5, 7, 8, 10, 11, 12, 13, 17 and 18 of the Convention on Biological Diversity (CBD) as follows:

1. Research collaboration with regional and international partners provided the relevant expertise for successful implementation of this project and agreement for the training of a Liberian student yearly on a fully funded Conservation Biology MSc. Programme.
2. Establishment of the SCC, creation of a new biodiversity course and launch of a national training programme for park staff and management, academics, students and local people has increased knowledge of Liberia's biodiversity, created an enabling environment and set the pace for more effective monitoring and conservation of the SNP and other biodiversity hotspots as well as better informed management decisions.
3. Provision of alternative income for community people and active engagement of local people has increased their support for biodiversity conservation (see examples below);
4. The launch of the research and biomonitoring programme at SNP and simultaneous dissemination of information at the local, national and international level has enhanced Liberia's potential to contribute to global conservation goals, for example, through contribution of data to national/regional action plans as stated below.

During biomonitoring and research activities carried out in SNP, 19 out of 43 CITES mammals species and nine CITES bird species in SNP were recorded, including the African Elephant and Timneh parrot. By supporting and coordinating research efforts, the project will address the knowledge gaps on Liberia's biodiversity, enable future monitoring of some of the 130 CITES listed species found in the country and enable better informed management decisions to be made, directly contributing to the conservation and sustainable use of biodiversity.

4.2 Project support to poverty alleviation

The project addresses poverty alleviation both directly and indirectly. The indicator identified during project planning was the number of community members trained in basic guiding skills, recognising that such skills, with the establishment of a research centre, will enable community members to earn income from supporting researchers as field assistants. As a result, 10 field guides and 15 biomonitoring auxiliaries, all community people were trained and benefit from long- and short-term employment. For example three of the community field guides, earned income from supporting a MSc. research project in 2014.

Also, the establishment of the SCC and hosting of field courses and researchers opened up opportunities for local women to provide services such as catering and laundry. This has increased support for the project among local communities around the park. For example, a local woman hinted that children are usually happy when the centre is hosting a field course, as their mothers are able to cater for their immediate needs, including providing materials for school, from their earnings.

4.2.1 Programme indicators

- Did the project lead to greater representation of local poor in management structures of biodiversity?

Yes. As the SNP is a strictly protected area under full supervision by the government through the FDA, the local communities around the park have had little impact in its management. However the presence of the Paramount Chief of Jalays Town (community where the SNP headquarters is located) on the steering committee now means that they can input indirectly into the management of the park. This for example has made the official report of increased incidence of human-wildlife conflicts (HWC) around SNP possible and funds have now been secured to address the issue.

- Were any management plans for biodiversity developed?
No new plan was developed. However the SNP management plan expires in 2016 and the steering committee has established a working group to facilitate the revision and renewal of the current management plan. The review is intended to be fully participatory and will incorporate the needs of the local communities
- Were these formally accepted?
NA (Please see above)
- Were they participatory in nature or were they 'top-down'? How well represented are the local poor and women, in any proposed management structures?
NA (Please see above)
- Were there any positive gains in HH income as a result of this project?
Yes. Household income of several locals increased both through the earning of those directly employed under the project and those who received income from services provided during events at the SCC.
- How many HH saw an increase in their HH income?
While this is difficult to measure with certainty, inferences can be made. Through the employment of 15 biomonitoring community auxiliaries and two local people employed as caretaker and gardener at the SCC, 17 persons in total have seen their income increased as a result of the project. At the same time, 35 community women have earned income from catering and laundry services during field courses. Hence, approximately 50 HH in about six communities have seen an increase in their income.
- How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?
Most members of the local communities who benefited from the project were self-employed as subsistence farmers, and their earnings from the project represents nearly 100% increase in their income, especially since the job does not necessarily affect their ability to continue farming. For the community auxiliaries employed as biomonitoring staff, they were previously paid US\$ 40 monthly and for two years had stopped receiving income due to lack of funds. As a result of this project, with co-funding from the USFWS, they now earn US\$ 60, representing at least 33% increase in their earnings. According to the IMF (2013), Liberia has a nominal GDP of US\$ 484, which means that the additional income gained through the project can help to significantly improve the livelihood of the beneficiaries.

4.3 Transfer of knowledge

Did the project result in any formal qualifications? **Yes**

- How many people achieved formal qualifications?
One Liberian student, through collaboration between this project and a regional institution secured a full scholarship and obtained an MSc in Conservation Biology.
- Were they from developing countries or developed countries?
He is from Liberia, a developing country.
- What gender were they? **Male**

Results on increasing threats around SNP obtained from biomonitoring and research activities have led to the formation of a national sub-committee on Law Enforcement, an off-shoot of the project steering committee.

Data collected from the biomonitoring and camera-trapping programme on the West African Chimpanzee in 2014 and 2015 have been sent to researchers at the Max Planck Institute of Evolutionary Anthropology to update the IUCN SSC A.P.E.S database, to feed into the review of the West African Chimpanzee Regional Action Plan.

Furthermore, seven presentations on the project's research and training activities were made between 2013 and 2015 at four international conferences.

4.4 Capacity building

- i. Did any staff from developing country partners see an increase in their status nationally, regionally or internationally? For example, have they been invited to participate in any national expert committees, expert panels, have they had a promotion at work?

Participants in the project's training events saw their knowledge and skills improved, enabling them to apply for and or be selected for jobs they would have otherwise found more difficult to get. In addition to examples highlighted in section 2.1, the following examples show evidence of increased effectiveness in knowledge, skills and work delivery by project partners.

The current SNP park biologist after receiving training on data analysis and proposal writing was transferred from her previous job in a proposed protected area to the more prestigious position at the Sapo National Park and Benedictus Freeman, the student who obtained his master from APLORI, was recruited as the FFI Technical Assistant, Research and Education and was recently nominated to serve on the National Forest and Landscape Forum; a multi-stakeholders cross-sectorial policy dialogue forum under the FDA.

- ii. What gender were they? **Female** and **male** respectively.

Similarly, both field staff of the FDA Conservation Department and those based at the headquarters in Monrovia received significant capacity development. The FDA was also provided field equipment and other materials for effective and continued implementation of biomonitoring.

Lastly but more importantly, the FDA Technical Manager for Conservation was supported by the project technical team to develop a PowerPoint on elephant data collected from the SNP biomonitoring programme for presentation at the 6th Meeting of the African Elephant Coalition meeting in Cotonou, Republic of Benin in 2015. The FDA was subsequently supported by FFI, to submit a pledge letter signed by Liberia's President, Ellen Sirleaf Johnson, making Liberia the first country to ratify the EPI after the meeting. FDA is now being supported by the EPI to organize a meeting for the development of Liberia's first Elephant and Ivory Action Plans.

4.5 Sustainability and Legacy

One strong element of this project which will ensure its long-term sustainability is the focus on a 'training-of-trainer' approach. Lecturers are being trained to continue to implement the developed academic modules and on-going support is being provided by the project team.

The success of the internship programme has attracted interest from students and increased the chances of project beneficiaries continuing in conservation-related careers, For example, more than 100 applications were received from graduate and undergraduate students for the last internship position. Examples of what interns do after their training is given in section 2.

As stated above, the biomonitoring programme has contributed data to the review of the West African Chimpanzee Regional Action Plan and establishment of a national Law Enforcement sub-committee. It has also led to the proposal of National Elephant and Ivory Action Plans.

The organizational structure of the Centre where the steering committee oversees the affairs of the Centre, and training and integration of Liberian national as technical staff, will promote local leadership and long-term sustainability of the project. Furthermore training and research collaborations with UK based and regional institutions, particularly the training of one Liberian every year on the APLORI Conservation Biology programme will ensure that research and technical capacity development continues even after current funding ceases. In addition, FFI has successfully secured additional funding for the project, and all project staff, resources and infrastructure (including the SCC) will continue to be used to achieve the project goals.

5 Lessons learned

Generally the project design and management structure was suitable and expertise and funds were sufficient to address the identified problems. However, some important lessons were learnt early in the project that helped to improve on subsequent project activities.

1. Output level assumption that lecturers will be available for training and module implementation

While instructors from partner academic institutions have participated with keen interest in learning to teach the conservation modules, the actual likelihood of UL lecturers being available to teach the modules is low as most lecturers work part time and already have other courses to teach per semester. In response to this problem, a graduate of UL was selected for training on a one year MSc program in Conservation biology at APLORI Nigeria and has now been recruited on the project and is supporting the implementation of the modules at academic seminars. More graduates will be sent for long-term (Masters-level) training in conservation biology to support the teaching of the UL academic modules after their training.

2. Training needs of teachers implementing the conservation modules

We realized that training needs of lecturers were more than we anticipated and that there were no lecturers with the sufficient amount of expertise required to teach the modules. Also, in addition to technical skills, the teaching method was mostly obsolete as teaching was done mainly by rote and assessment by class exams, assignments and tests only. We agreed that instructors required a rather more intensive training than the one-time teachers training workshop originally planned for the project. We were able to secure more funding and held up to seven TOT workshops for lecturers, which included training in effective communication, several lectures in conservation biology using some of the conservation modules and educational packs, and lecturers also observed the project coordinator teach. This is in addition, to the agreed collaboration with APLORI to train a Liberian student and potential conservation instructor on the APLORI Conservation Biology MSc. course in Nigeria

3. Differing program objectives of partner academic institutions that require slightly different approaches in module development.

It was realized that since the different institutions offered different programs, the scope and relevance of the subject to their objectives would need to be considered while planning the modules. While the University of Liberia has accepted all 12 conservation modules we have designed, the Forestry Training institute and Nimba County Community College have adapted only a few topics from some of the modules (with our guidance) to suit their program.

4. Bureaucratic procedures associated with finalizing the curriculums

The review of the UL curriculum took longer than expected. Although we were made to understand that it was common to have such prolonged bureaucratic processes. However, the presence of the UL Head of Forestry in the project steering committee made it easy to influence curriculum development and helped to facilitate the finalization process.

5. High rate of staff turnover impacts sustainability and transfer of knowledge

At least four instructors trained during the project have left their institutions and have been replaced by new instructors, largely due to the impacts of Ebola. The four instructors were key project participants who had gone through nearly all the workshops and field courses and received training on module implementation. Their replacements were new graduates of UL who had not received any formal teaching or conservation training. We have now adopted a

new approach to training trainers that will involve providing final year students of the UL with teaching skills and training in the implementation of the conservation module. We have applied for post-project funding to accomplish this and to strengthen the impact of this project in the wake of Ebola in Liberia.

5.1 Monitoring and evaluation

There was no major change in the project design, and the M&E system designed for the project remained practical and useful in providing feedback to partners and stakeholders, and in the general implementation of the project. These include:

- 1) Regular meetings of the SCC Steering Committee where project progress and issues arising were presented and discussed
- 2) Production of monthly reports – at the beginning, the Project Coordinator provided monthly updates to the FFI Country Manager, but as the project progressed, reports were given on a quarterly basis and regular (weekly) email updates were provided to the FFI Liberia Programme Manager in the UK by the project coordinator, reviewing objectives and detailing achievements and any difficulties encountered.
- 3) Production of detailed annual technical and financial reports, reporting against objectives and budget
- 4) On-going in-country supervision by FFI's Country Manager
- 5) Quarterly oversight visits by FFI Liberia Programme Manager. However, where this was not feasible, due to the costs associated with regular flights to Liberia from the UK and as a result of Ebola, Skype meetings were held to provide any updates on the project's progress.
- 6) Wide circulation of all draft reports to all relevant stakeholders and integration of comments before finalisation. The modules, business plan and other reports were thoroughly reviewed by relevant partners.
- 7) End of project audit of project finances by independent auditor. This is now being carried out.

Questionnaires/feedback forms were also circulated after training workshops and courses. In addition, a monitoring and evaluation questionnaire was designed to evaluate the impact of the project on students who will undergo training during the project. Although the teaching of the modules has not commenced, data was collected for two years (2012 and 2014). This involved interviewing a randomly selected set of graduates of the University of Liberia and Forestry training institute. In the first year (2012) none of the graduates had received any training under this project. However, in 2014 more graduates had received more than one form of formal or informal training. Results showed an increase in understanding of what conservation is among graduates in 2014 compared to 2012. These will form the baseline for future evaluation when the teaching of the modules must have commenced.

5.2 Actions taken in response to annual report reviews

There were no major issues raised in the previous review. However, a Facebook page has been set up for the project as was advised by the last reviewer.

6 Darwin identity

As a major donor, the Darwin Initiative has been given proper acknowledgement throughout this project. The Darwin logo was used throughout the project on publicity materials – posters, postcards, banners and signboards. Stickers of the logo or serial numbers with the DAR code were placed on equipment purchased for the centre. The Darwin initiative logo was also prominent on PowerPoint presentations and was recognized in news articles and reports circulated. All local partners – the University and government institutions as well as international partners are very familiar with the role of the Darwin Initiative as the main funder of the project and the project is usually referred to as the 'Darwin Project'.

7 Finance and administration

7.1 Project expenditure

Project spend (indicative) since last annual report	2014/2015 Grant (£)	2014/2015 total yr3, 18 months Darwin Costs (£)	Extended 6 Months (£)	Variance % (to total yr3, 18 month budget)	Comments (please explain significant variances)
Staff costs (see below)				-5.1%	
Consultancy costs				N/A	
Overhead Costs				-0.2%	Audit costs included in this line as per original budget
Travel and subsistence				-9.80%	With apologies, expected costs incurred for the 12 month position came in later than expected, therefore were slightly over reported – here balanced out.
Operating Costs				-2.90%	
Capital items (see below)				N/A	
Others (see below)				-5.8%	Audit costs included in overheads as per original submitted budget
TOTAL				-4.6%	

Staff employed (Name and position)	Cost (extension 6 months) (£)
Mary Molokwu	
Caretaker Centre of Excellence	
Project Driver	
Kathryn Shutt	
Ulf Ottersen/Tim Wachter ZSL	
Ulf Ottersen/Tim Wachter ZSL	
TOTAL	

Capital items – description	Capital items – cost (£)
N/A	

TOTAL	

Other items – description	Other items – cost (£)
Consumables	
Carbon Offsetting	
TOTAL	

7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
US Fish & Wildlife Service Great ape fund	
ARCUS Great Ape Fund	
Basel Zoo	
BHP Flagship Species Fund	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
US Fish & Wildlife Service Great ape fund	
ARCUS Great Ape Fund	
TUSK Trust Award	
Reid Park Zoo	
TOTAL	

7.3 Value for Money

The cost of work in Liberia is high. Field sites are remote and difficult to access, and maintaining equipment is difficult and expensive. However, FFI has been operating in Liberia for close to 20 years now, thus we have a strong network of relationships and extensive experience which enables us to feel confident that we are able to source operating equipment and services at appropriate prices. As per our accounting and finance principles, we always obtain multiple quotes for goods and services ahead of procurement according to established delegations of authority. Local suppliers are used wherever possible to reduce transport and logistical costs and import duties. Moreover, due to our strong partnership relations, we are able to foster an environment of collaboration where services might otherwise prove extremely costly – for example, local women to Sapu deciding to provide critically needed water during the construction of the training centre, as they saw that were building a something positive for them, and that would later be owned and run by them. Additionally, we consistently plan and implement multiple activities combined together where possible, to make efficient use of national and international travel and time costs.

With regards to management – the project forms part of a wider FFI Liberia portfolio and is technically, financially and administratively backstopped via co-funded experts in the UK– to a level that would not be possible for a standalone or sole-managed project. As such, we feel that the project has demonstrated the best possible value for money without compromising quality or ethics – in a challenging environment.

Annex 1 Project's logframe, including indicators, means of verification and assumptions.

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.</p>			
<p>Sub-Goal: To contribute to the conservation of Liberia's biological diversity, and Sapo National Park in particular, by drawing on UK expertise to build national capacity to meet international and national biodiversity targets.</p>	<ol style="list-style-type: none"> 1) The extent and quality of information available on the characteristics, uses and values of the biodiversity of Liberia 2) The degree to which research outputs are integrated into natural resource management decisions (incl. SNP) 3) A significant contribution made to Liberia's National Biodiversity Action Plan. 	<ol style="list-style-type: none"> 1) Data available on the characteristics, uses and values of Liberia's biodiversity 2) National and regional conservation strategies/policies/laws; Meeting minutes; Reports 3) Project reports (annual and final) 	
<p>Purpose To build capacity in participatory conservation and applied research to international standards in the next generation of Liberia's conservation professionals through enhanced university education, practical field experience and mentoring from international researchers, whilst simultaneously generating baseline information on Liberia's biodiversity.</p>	<ol style="list-style-type: none"> 1) Number of students participating in new conservation modules and field courses. 2) Number of students choosing conservation-related careers 3) Number of research projects conducted at CEERCL. 4) Application of learning by FDA course attendants during the course of their work 	<ol style="list-style-type: none"> 1a) University registration records 1b) CEERCL annual reports 2) Post-project follow-up questionnaire to course attendants 3) Research reports/publications 4) Pre and end-of-project questionnaires to FDA course attendants and discussion with line managers 	<p>Facilities, lecturers and students available. National and international researchers attracted to the area. Political stability maintained nationally and regionally. UL, FDA and FTI remain operational.</p>

<p>Outputs</p> <p>1. Curriculums of Liberia's premier teaching institution updated with conservation-focused teaching modules, in line with international standards. Topics to include introduction to conservation biology, rights-based governance approaches, sustainable livelihoods and climate change</p>	<p>1.1) 6 academic modules written and formally included in the curriculums 1.2) A minimum of 6 lecturers trained in module implementation 1.3) Accompanying educational packs produced for teachers and students</p>	<p>1.1) Course modules and educational packs available 1.2) Report on 'train the trainer' workshop for lecturer produced</p>	<p>Lecturers available for training and module implementation. Sufficient students signing up for modules. Appropriate facilities available within the teaching institution.</p>
<p>2. Capacity of Liberian students and FDA employees in field research methods and conservation issues increased through residential courses at SNP hosted by CEERCL</p>	<p>2.1) Financially sustainable and effective functioning of newly established CEERCL. 2.2) CEERCL hosts minimum of three 5 day workshops per year. 2.3) Capacity of a minimum of 60 UL students, 60 FTI students and 30 FDA employees built in field research methods and conservation issues</p>	<p>2.1; 2.2) Monthly and annual reports produced by CEERCL; Sustainability plan; minutes of CEERCL steering committee. 2.3) Attendance lists; Pre and end-of- project questionnaires to course attendants; Accompanying educational packs produced</p>	<p>Lecturers/teaching support staff available for field course implementation. Sufficient students signing up for workshops. Active participation of students</p>
<p>3. Improved knowledge of the biodiversity of Southeast Liberia through increased collaborative research and continuation of SNP bio-monitoring programme.</p>	<p>3.1) No. research projects focussed on biological diversity in Southeast Liberia increased, including proportion produced by Liberian nationals 3.2) Continuation and growth of SNP bio-monitoring programme 3.3) Number of community members trained in basic guiding skills</p>	<p>3.1) Research reports/publications 3.2) Annual SNP bio-monitoring report 3.3) Monthly and annual project reports</p>	<p>National and international researchers attracted to area; Researchers are capable of carrying out and completing research work in logistically challenging areas. Community interest in learning guiding skills to diversify income through guiding researchers and tourists.</p>
<p>4. Research findings disseminated through local and national media, scientific publications, a dedicated webpage and reports.</p>	<p>4.1) A minimum of 2 national and 1 international press releases and/or radio interviews to be released per year</p>	<p>4.1) Monthly and annual reports produced by CEERCL 4.2) National and International publications 4.3) Research reports/publications posted on www.liberianfauna-flora.org</p>	<p>Research of sufficient quality to enable publication</p>

Activities (details in workplan)

- 1.1 Hold inception stakeholder workshop to launch project and assess priorities for academic and field course content.
- 1.2 Devise and develop 6 academic modules and embed into curriculums of UL and FTI
- 1.3 Produce accompanying educational packs for teachers and students
- 1.4 Train a minimum of 6 lecturers in module implementation
- 1.5 Teach conservation modules to UL and FTI students
- 2.1 CEERCL Steering Committee formed and operational
- 2.2 Production of CEERCL business plan
- 2.3 Construct and equip research centre and campsite
- 2.4 Adapt ZSL field courses for Liberian situation and priorities
- 2.5 Conduct field courses in field research methods and conservation issues
- 3.1 Conduct an in-depth review of current understanding of SNP's biodiversity and identify knowledge gaps
- 3.2 Design and produce CEERL promotional material aimed at international researchers, including posters, leaflets and webpage
- 3.3 Clear and map a trail system in the park for use by researchers, rangers and tourists
- 3.4 Continuation and growth of SNP bio-monitoring programme
- 3.5 Host national and international researchers to conduct applied research work in areas of identified need
- 3.6 Establishment of small library of books, papers and reports relevant to the study and conservation of Liberian biodiversity
- 3.7 Train a minimum of 10 community members in basic guiding skills
- 4.1 Produce monthly and annual reports for CEERCL
- 4.2 News features and radio broadcasts released nationally
- 4.3 Research reports/publications posted on www.liberianfauna-flora.org
- 4.4 Conferences/Seminars attended to present research work
- 4.5 Establish dissemination network

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Note: For projects that commenced after 2012 the terminology used for the logframe was changed to reflect DFID's terminology.

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year (April 2015 – October 2015)	Actions required/planned for next period
<p>Goal/Impact:</p> <p>Goal/Impact</p> <p>Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.</p> <p>Sub-Goal:</p> <p>To contribute to the conservation of Liberia's biological diversity, and Sapo National Park in particular, by drawing on UK expertise to build national capacity to meet international and national biodiversity targets.</p>		<p>The project has made significant progress towards a positive impact on biodiversity and the local communities around the SNP, supporting Liberia to meet several CBD targets. The biomonitoring programme at the park was restarted as a result of the project, and is currently on going, comprising transect surveys and camera trapping. It has recorded important species and the distribution of some of these species has been established. The bird list of SNP has been updated and population of some important bird species in SNP have been estimated. 15 locals (biomonitoring staff) have also received regular income as a result of the project. The establishment of the SCC means that Liberians can now be trained to conduct independent research and that conservation interventions and management decisions will now be informed by sound science. It also means that local and international researchers can be hosted and that they can work with community field guides trained to support research work in SNP, who will in turn received earnings. Local women have also benefitted from the establishment of the SCC through income generation from catering and laundry services. Research is also being promoted on social issues that affect the well-being of the local communities, for example human-wildlife conflicts.</p>	<p>Do not fill not applicable</p>

<p>Purpose/Outcome</p> <p>To build capacity in participatory conservation and applied research to international standards in the next generation of Liberia's conservation professionals through enhanced university education, practical field experience and mentoring from international researchers, whilst simultaneously generating baseline information on Liberia's biodiversity</p>	<ol style="list-style-type: none"> 1) Number of students participating in new conservation modules and field courses. 2) Number of students choosing conservation-related careers 3) Number of research projects conducted at SCC. 4) Application of learning by FDA course attendants during the course of their work 	<p>The project recorded immense success in the set aim to build national capacity in conservation and research. Despite setbacks experienced as a result of the Ebola crisis, the project was still able to launch a training and research programme, which has promoted independent research work by Liberian students at both the undergraduate and graduate levels. During the life of the project, over 300 students received training, and more than 70 instructors, FDA and civil society staff received training in several aspects of conservation including technical and soft skills such as effective communication, fundraising, camera trapping, bird identification and data analysis. Some of them supported the training of student participants during this project. In addition, seven interns trained during this project successfully conducted research on biological and social issues and have followed conservation career paths after their training.</p>	<p>Do not fill not applicable</p>
<p>Output 1. Curriculums of Liberia's premier teaching institution updated with conservation-focused teaching modules, in line with international standards. Topics to include introduction to conservation biology, rights-based governance approaches, sustainable livelihoods and climate change</p>	<ol style="list-style-type: none"> 1.1) 6 academic modules written and formally included in the curriculums 1.2) A minimum of 6 lecturers trained in module implementation 1.3) Accompanying educational packs produced for teachers and students 	<p>95% of all activities under this output have been achieved and indicators remain appropriate. Only final lesson notes are still being prepared for all 12 modules which require detailed tapering to changing teachers requirements.</p>	
<p>Activity 1.1</p> <p>Hold inception stakeholder workshop to launch project and assess priorities for academic and field course content.</p>		<p>This activity was successfully completed in Year 1</p>	
<p>Activity 1.2,</p> <p>Devise and develop 6 academic modules and embed into curriculums of UL and FTI</p>		<p>This activity was fully achieved in Year 2. 12 modules have been inserted into the 3rd and 4th Year Forestry curriculum, and conservation topics inserted into the FTI curriculum.</p>	

Activity 1.3, Produce accompanying educational packs for teachers and students	This activity has now been completed. PowerPoints, hand-outs and some lesson plans have been developed for the teaching of the conservation modules.
Activity 1.4, Train a minimum of 6 lecturers in module implementation	This activity has been achieved. 24 lecturers were trained throughout the project.
Activity 1.5, Teach conservation modules to UL and FTI students	This activity was achieved and remains on-going. Although the university curriculum was finalised in 2015, the teaching of the teaching of the biodiversity course at the university will not commence until end of 2016. Hence the modules are currently being taught during school seminars. Over 300 students were trained during various seminars and workshops under this project.
Output 2. Capacity of Liberian students and FDA employees in field research methods and conservation issues increased through residential courses at SNP hosted by SCC	<p>2.1) Financially sustainable and effective functioning of newly established SCC.</p> <p>2.2) SCC hosts minimum of three 5 day workshops per year.</p> <p>2.3) Capacity of a minimum of 60 UL students, 60 FTI students and 30 FDA employees built in field research methods and conservation issues</p> <p>All activities under this output have been achieved.</p> <p>Indicators remain appropriate measures of project progress</p>
Activity 2.1. SCC Steering Committee formed and operational	This activity was successfully completed in year 1 and the committee continues to meet 203 times a year.
Activity 2.2. Production of SCC business plan	This activity has been achieved and the business plan is being finalized.
Activity 2.3. Construct and equip research centre and campsite	This activity was successfully completed. The Sapo Conservation has been in full operation since 2013.
Activity 2.4. Adapt ZSL field courses for Liberian situation and priorities	This activity was successfully completed. ZSL modules have been adapted for the field course and ZSL continues to provide technical support where necessary.
Activity 2.5. Conduct field courses in field research methods and conservation issues	This activity was successfully completed. So far, since 2013 four field courses have been held (two for trainers and two for students).
Output 3. Improved knowledge of the biodiversity of Southeast Liberia through increased collaborative	<p>3.1) Number of research projects focussed on biological diversity in Southeast Liberia increased,</p> <p>All activities under this output have been achieved.</p>

research and continuation of SNP bio-monitoring programme	including proportion produced by Liberian nationals 3.2) Continuation and growth of SNP bio-monitoring programme 3.3) Number of community members trained in basic guiding skills	Indicators remain appropriate measures of project progress
Activity 3.1 Conduct an in-depth review of current understanding of SNP's biodiversity and identify knowledge gaps		This activity has been fully achieved.
Activity 3.2 Design and produce SCC promotional material aimed at international researchers, including posters, leaflets and webpage		This activity has been fully achieved. Posters and flyers were designed and circulated among stakeholder institutions (locally and internationally) and in addition, publicity emails were sent to international academic institutions.
Activity 3.3 Clear and map a trail system in the park for use by researchers, rangers and tourists		This activity has been achieved. The biomonitoring teams have mapped several trails across SNP and this is being reviewed by the Technical Assistant for Research and Education who will design the GIS map.
Activity 3.4. Continuation and growth of SNP bio-monitoring programme		This activity has been fully achieved, and bio-monitoring will be an on-going activity. Data analysis is currently on-going.
Activity 3.5. Host national and international researchers to conduct applied research work in areas of identified need		This activity has been fully achieved. One international and three national researchers were hosted during the project.
Activity 3.6. Establishment of small library of books, papers and reports relevant to the study and conservation of Liberian biodiversity		This activity has been achieved and two reference libraries have been set up. Library books are still being procured.
Activity 3.7. Train a minimum of 10 community members in basic guiding skills		This activity has been fully achieved
Output 4. Research findings disseminated through local and national media, scientific publications, a dedicated webpage and reports.	4.1) A minimum of 2 national and 1 international press releases and/or radio interviews to be released per year	All activities under this output have been achieved.
Activity 4.1 Produce monthly and annual reports for SCC		This activity has been fully achieved
Activity 4.2 News features and radio broadcasts released nationally		This activity has been fully achieved

Activity 4.3 Research reports/publications posted on www.liberianfauna-flora.org	This activity has been fully achieved
Activity 4.4 Conferences/Seminars attended to present research work	This activity has been fully achieved
Activity 4.5 Establish dissemination network	This activity has been fully achieved

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Theme	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis						
1b	Number of PhD qualifications obtained						
2	Number of Masters qualifications obtained	1	Liberian	Male	“Bird-habitat relationships and effects of anthropogenic activities in and around Sapo National Park, Liberia”	English	Study conducted at the A.P. Leventis Ornithological Research Institute at the University of Jos, Nigeria
3	Number of other qualifications obtained						
4a	Number of undergraduate students receiving training	>300	Liberian	Male Female		English	Various trainings, including workshops, field courses and seminars
4b	Number of training weeks provided to undergraduate students	5				English	
4c	Number of postgraduate students receiving training (not 1-3 above)						
4d	Number of training weeks for postgraduate students						
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(e.g., not						

Code	Description	Total	Nationality	Gender	Theme	Language	Comments
	categories 1-4 above)						
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	95	Liberians	Male Female		English	
6b	Number of training weeks not leading to formal qualification	20					
7	Number of types of training materials produced for use by host country(s) (describe training materials)	10			Various topics relating to biodiversity conservation	English	Materials included: modules, PowerPoint, training manual, lecture notes, maps, posters, flyers, hand-outs, research article

Research Measures		Total	Nationality	Gender	Theme	Language	Comments
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)						
10	Number of formal documents produced to assist work related to species identification, classification and recording.	2				English	Photo plates and data sheets for identification.
11a	Number of papers published or accepted for publication in peer reviewed journals	1				English	Liberia
11b	Number of papers published or accepted for publication elsewhere	1				English	Liberia

12a	Number of computer-based databases established (containing species/generic information) and handed over to host country						
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1				English	Liberia
13a	Number of species reference collections established and handed over to host country(s)						
13b	Number of species reference collections enhanced and handed over to host country(s)						

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	5				English	
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	4				English	

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)	Approx' £40-50,000 (SC infrastructure, partners and teachers running equipment and field equipment for biomonitoring).	Although the Darwin funding has come to an end, the project has secured further funding and is still on-going with the national steering committee and biomonitoring programme with FFI retaining the responsibility of project coordination

21	Number of permanent educational, training, research facilities or organisation established	1	The Sapo Conservation Centre established at Sapo National Park remains functional.
22	Number of permanent field plots established		

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work	£440,767					

Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	<input type="checkbox"/>
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	

14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	☐
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	☐
20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	

Annex 5 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. contact address, website)
Newsletter	'Importance of the Sapo Conservation Centre in Liberia', Mary Molokwu, 2013	Nigerian	UK	Female	SCB African Conservation Telegraph	http://conbio.org/groups/sections/africa/act
MSc Thesis	'Bird-habitat relationships and anthropogenic threats in and around SNP', Benedictus Freeman, 2014	Liberian	Nigeria	Male	University of Jos, Nigeria	http://www.bou.org.uk/student-post-docs-early-career-researchers/branta/benedictus-b-g-freeman/
Journal - Small Carnivore Conservation 47:35-37.	Vogt et al. (2012) First records of Liberian Mongoose <i>Liberiictis kuhni</i> in Sapo National Park, South east Liberia	German	UK	Female	Houston Zoo, Mississippi State University	www.smallcarnivoreconservation.org

Annex 6 Darwin Contacts

Ref No	19-004
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