

COVER SHEET FOR DARWIN INITIATIVE ANNUAL REPORT ON PROJECT 162/38/38

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Darwin Initiative for the Survival of Species

Annual Report

1. Darwin Project Information

Project title	Conservation of Plant Diversity of western Cameroon
Country(ies)	Cameroon
Contractor	Royal Botanic Gardens, Kew
Project Reference No.	162/38/38
Grant Value	£121, 947.00
Start/Finishing dates	1 st November 1999-31 st December 2003
Reporting period	1 April 2000 to 30 March 2001

2. Project Background

The project covers South West and North West Provinces of Cameroon (i.e. western Cameroon). This area has been shown to have the highest concentration of plant species per degree square in Tropical Africa. Many of these plant species are restricted to small parts of the area and so are vulnerable to extinction. The main threat is thought to be felling of forest followed by establishment of agriculture. The project is addressing the problem of the threat of extinction to the plant species of this area.

3. Project Objectives

To develop further the National Herbarium of Cameroon at Yaounde (hereafter HNC) as the national centre for plant diversity assessment by full involvement with the "W Cam" (abbreviated version of our project's title) project and to foster communication with the three protected area conservation projects; to compile a taxonomically up-to-date checklist of species in W. Cameroon; to generate 3 individual "protected area" checklists; to use information from the checklists to enhance conservation by identifying, locating and mapping conservation priority species, advising conservation bodies on management of priority species, proposing key areas for conservation and producing conservation posters.

No "logical framework" was requested, as such. The project implementation timetable from the schedule is included as an appendix since this is what we are reporting against.

There have been no modifications to the objectives over the last year nor any suggestions that any be made, with one exception: the identification of the need for more mounting paper at the National Herbarium in order to mount the backlog of specimens that has accumulated there. This difficulty was discussed in detail in Yaoundé in November 2000 by Dr Achoundong and Prof. Owens and an application for funds to address the matter has been made to the board of trustees of R.B.G., Kew.

4. Progress

The project began in November 1999 with the first joint RBG, Kew-National Herbarium of Cameroon botanical inventory expedition of the project to western Cameroon (see expedition report submitted last year). Two project Darwin staff were recruited in February 2000: Suzanne White, who began databasing historic specimens at RBG, Kew, and Ben Pollard who began by producing conservation posters. Four papers describing new species from western Cameroon, including conservation assessments, were submitted for publication. Baseline maps of vegetation, climate and elevation were produced by Justin Moat.

Ben Pollard made a poster presentation featuring the "WCam" project at the public Earthwatch Millennium Conference at Oxford in April (additional output).

In April the decision was taken to concentrate efforts on naming specimens and describing species from the Mt Oku area, so as to be able to produce one of the key outputs (a protected area "conservation checklist") ahead of schedule. This decision was prompted by:

1. an expression of keen interest from BirdLife International, who manage the protected area project responsible for the Mt Oku area (i.e. the Kilum-Ijim Forest Project).

2. our estimate that 96% of the natural vegetation of the Bamenda Highlands (in which Mt Oku falls) has been destroyed.
3. our GIS studies that show that surviving natural vegetation in the area is still being lost at a high rate.
4. BirdLife offering to make a contribution to the publishing costs of the book.

Accordingly "The Plants of Mount Oku and the Ijim Ridge, a Conservation Checklist" was published in August 2000 after four months of extremely concentrated effort at RBG, Kew. Data gathered in the first Darwin expedition to Cameroon in November 1999 forms an important part of the book. This book enumerates the nearly one thousand species of the area including c. 20 new to science (some published as separate papers by us). It also includes 52 detailed Red Data taxa assessments, mostly for endemic species never previously assessed, using the latest IUCN criteria. IUCN have already adopted these Red Data assessments for these taxa (see www.redlists.org).

The book was promoted at the triennial AETFAT (association for the study of tropical african plant taxonomy) congress in Brussels in August 2000 and is already being used as a model to acquire and present data for protected area inventory work in Southern Africa. A checklist for an area in Venezuela, published in USA in 2001, is clearly influenced in structure by the Mt Oku book. Advance copies of the Mt Oku book were sent to the libraries of the national herbaria of ten African countries via delegates at the AETFAT congress. The book received a lengthy and favourable review in *Taxon* (the international journal of plant taxonomists) in February 2000 and is selling steadily. It was launched formally at R.B.G., Kew in September 2000 with a representative from the Cameroonian High Commission. 50 copies were taken out to Cameroon for presentation to libraries, local community, government forestry and media representatives in the Mt Oku area and to national representatives in the capital. A stock is held for sale by the Bamenda Highlands Forest Project for purchase in Cameroon at 10,000 fcfa per copy.

We learnt in June 2000 that the data we had provided to BirdLife International on threatened species of Mt Oku (see annual project report to Darwin Initiative 99/01) had helped to obtain a 1 million dollar grant from UNDP-GEF which will secure the future of the Kilum-Ijim Project, and so the natural vegetation of the Mt Oku area, for the next four years (additional output).

In July two Nuffield (A-level) students were assigned to the "WCam" project for a month. One student designed a third conservation poster for use in Cameroon following the pattern used for the posters we produced in 99/01 which were found to be extremely effective by the Kilum-Ijim Forest project (John DeMarco, pers. comm.). The other student produced as her project a guide to the identification of the upper montane tree species of the Bamenda Highlands for use by conservation technicians in Cameroon. Both products were delivered in November 2000 to Bamenda Highlands Forest Project and were well received.

In August, two presentations (one poster, one lecture) arising from the "WCam" project were prepared for the AETFAT congress in Brussels, and duly delivered. This proved a useful opportunity to publicize the Darwin Initiative Project. One paper was submitted for publication in the proceedings (see table 1). At the congress copies of the newly signed MOU between RBG, Kew and the mother organization (IRAD) of Herbar National Camerounais were exchanged with Dr Achoundong, head of HNC, culminating 12 months of negotiation.

In the period September-March five papers (four were scheduled) describing a total of eight new taxa (including one new genus) and giving conservation assessments where appropriate, were submitted for publication (see table 2).

In October Darwin Officer Ben Pollard departed for Cameroon to prepare the way for the second Darwin botanical inventory expedition to western Cameroon to be held in November-December (see expedition report). These expeditions are carried out jointly by Herbar National Camerounais and R.B.G., Kew. Two new areas, each administered by conservation projects (The Bamenda Highlands Forest Project and the Banyang Mbo Wildlife Sanctuary project) with whom links had been newly established in the last year, were inventoried. Teaching of trainees in botanical inventory for conservation management continued. The expedition featured the highest representation of Kew staff in Cameroon ever known (6 staff) including Prof. Simon Owens, Keeper of the Herbarium, who is monitoring the project. Prof. Owens started his visit by an inspection of the National Herbarium in Yaoundé and meetings with IRAD, the British High Commission and with CBD personnel. He also gave a lecture to students at the Ecole Normale.

1252 specimens were collected. The top set went to HNC in December. Subsets of duplicates were given to the two projects whose forests were being inventoried.

In January we learnt from WWF Cameroon that the 12 page report that we had provided them on the conservation importance of the Mt Kupe-Bakossi area (see annual report 99/00) had led to the

gazettement by the Ministry of the Environment and Forests (MINEF) of two areas previously lacking formal conservation designation (additional output).

In February the Minister of the Environment and Forests, with a delegation from MINEF visited RBG, Kew for a presentation of our work in Cameroon followed by a meeting of the UK Tropical Forest Forum. This topic was the subject of our press release for the year.

Databasing, geocoding and bar-coding of the estimated 9,000 historic herbarium specimens from western Cameroon at R.B.G., Kew is on target. By the end of March 2000, Suzanne White had entered 4355 specimens leaving 4645 specimens to be completed by the end of February 2001. This target seems feasible if one allows for an increase in efficiency as a result of experience accumulated over the first year.

This is primarily a research project. The technical work completed is detailed above. The results, in terms of papers submitted for publication, are referred to above and identified in detail in table 2. The major result was the publication of the book on the plants of the Mount Oku area. The methodology and techniques followed are those elaborated in Cheek & Cable, 1998, of which an excerpt is included in the appendix to this report.

The training element was carried out in Cameroon in November and December as part of the expedition following a system developed over several years on annual expeditions to Cameroon funded by the Earthwatch Institute. Three groups of people were trained;

- A. Junior National Herbarium staff (training in specimen databasing and basic plant family identification skills). These were selected by Dr Achoundong, head of the National Herbarium.
- B. Local Cameroonian conservation project staff (training in botanical inventories for conservation management). These were selected by John DeMarco, co-manager of the Bamenda Highlands Forest Project (a local protected area project for which we are conducting botanical inventories).
- C. Ghanaian, Kenyan and Tanzanian botanists sent to Cameroon for two weeks training with us by the Earthwatch Institute ("Earthwatch Fellows"). These were selected by a co-ordinator in each of these countries working with Lucy Beresford-Stooke, African Fellow Programme Manager at the Earthwatch Institute, Oxford.

A formal programme of lectures and practical demonstrations was executed over two two week periods. For most topics, e.g. specimen data-basing, a demonstration would be given, followed by a question session. Following this, trainees would have the opportunity for "hands-on" data-basing, using real field-books to enter on our field lap-top computers under the supervision of our data-base people. The programme was maintained as an addition to the botanical inventory work which remained the main purpose of the expedition.

During the last two weeks of the expedition, four members of the expedition suffered from malaria and our main vehicle broke down repeatedly. One of the two HNC field cars suffered a major breakdown shortly before the expedition and so was not available for use. Jean-Michel Onana of HNC, who was to have led the HNC component of the expedition at the direction of its head, Dr Achoundong, suffered serious illness just before the expedition departed and so was not available. His place was ably taken by Jean-Paul Ghogue. The luggage of the second wave of Kew botanists joining the expedition was delayed in Paris. The Keeper's luggage only caught up with him the day before he returned to Britain. Investigation of one forest reserve proved impossible due to the barrier presented by a deep and fast flowing river.

There has been no change to the design of the project other than to seek and obtain more resources so as to speed up delivery of outputs, such as protected area "conservation checklists". The original design of the project is considered to be sound.

Timetable for the reporting period April 2001-March 2002

<i>Quarter</i>	<i>Activity (initials of responsible team member: see schedule for list)</i>
<i>April-June 2001</i>	<p><i>Database 1164 historic specimens at R.B.G., Kew (SW)</i></p> <p><i>Begin designing ten new species-specific conservation posters for local conservation projects in Cameroon: to be completed by end of Sept. 01 (BP)</i></p> <p><i>Completion of two papers describing new species from western Cameroon, with conservation assessments where appropriate (MC)</i></p> <p><i>Begin Red Data assessment of species of Mt Kupe-Bakossi area, and begin compiling treatments of these Red Data species for publication (MC)</i></p> <p><i>Determination of unidentified specimens from Mt Kupe-Bakossi area, including those from the 99 expedition to Ngomboku (BM, MC, BP, etc)</i></p>
<i>July-Sept. 2001</i>	<p><i>Database 1164 historic specimens at R.B.G., Kew(SW)</i></p> <p><i>Sorting 1252 specimens from 2000 expedition ready for naming (BP)</i></p> <p><i>Begin naming 661 Bali-Ngamba specimens from 2000 expedition (MC, BP, BM).</i></p> <p><i>Completion of two papers describing new species from western Cameroon, with conservation assessments where appropriate (MC, BM)</i></p> <p><i>Digitize altitudinal data for GIS element of Mt Oku area (assuming student labour available).</i></p> <p><i>Completion of design of ten new conservation posters (BP)</i></p> <p><i>Prepare for third expedition in Cameroon (MC, GG, BP)</i></p> <p><i>BP departs for Cameroon to prepare way for expedition.</i></p>
<i>Oct.-Dec. 2001</i>	<p><i>Database 1164 historic specimens at R.B.G., Kew(SW)</i></p> <p><i>c. Oct. 1st, depart for Cameroon, rendezvous with National Herbarium staff and begin expedition and training sessions: to last until mid Nov. (BP, MC, GG and Parmjit Bhandol).</i></p> <p><i>Expedition report drafted (MC)</i></p> <p><i>Top set of duplicates extracted and sent to HNC (BP and HNC staff).</i></p> <p><i>Subsets of duplicates extracted for local reference herbaria (BP)</i></p>
<i>Jan.-March 2002</i>	<p><i>Database 1164 historic specimens at R.B.G., Kew (SW)</i></p> <p><i>Purchase of computing equipment at Kew for despatch to HNC (JM)</i></p> <p><i>Conclusion of identifications for Mt Kupe-Bakossi specimens.</i></p> <p><i>Complete Red Data treatments for Mt Kupe-Bakossi species</i></p> <p><i>Production of draft Mt Kupe-Bakossi checklist from the data-base</i></p>

5. Partnerships

Collaboration between UK and host country partners was generally satisfactory. There were no particular difficulties or unforeseen problems or advantages apart from those already described above under 4

There are no similar projects to the “WCam” project that we know of in Cameroon. We have established strong links over the last year with the IUCN office responsible for Red Data species. We have also established two new links with local conservation projects that protect areas in western Cameroon: the Bamenda Highlands Forest Project in NW Province, and the Banyang Mbo Wildlife Sanctuary Project, based in SW Province. We have also strengthened links with the Ministry of Research and Science and Technology in Cameroon (MINREST) as a result of the Keeper’s visit while monitoring the project in Nov. 2000 and with the Ministry of the Environment and Forests in Cameroon, culminating in a visit to RBG, Kew in Feb. 2001 by the Minister himself and his ministerial team.

6. Impact and Sustainability

This has been the first full year of the project and we are still largely at the stage of gathering and analysing data. We will have more to promote in the last year of the project. The project has been referred to in the National Press, and a radio interview has been given, so there is information in the public domain in Cameroon. The WCam project has a much higher profile at the Ministerial level (see

5 above) and at the local, tribal level, through the local conservation projects with which we work. Thus we have had meetings and have supplied conservation data to the Paramount Chief of the Bakossi people in SW Province and to the Fon of Oku in NW Province, for example. Publication of the “Plants of Mount Oku....” book has proved an excellent way of stimulating interest in Cameroon on plant diversity and the threats to it. Local MINEF officials (i.e. provincial delegates) have also been provided with data, e.g. conservation posters and copies of the book. Increase in interest and capacity for biodiversity resulting from our work is that our 00 expedition/training session received representatives from four Cameroonian conservation projects that had not featured on the first expedition/training session..

There is a satisfactory exit strategy in place.

7. Outputs, Outcomes and Dissemination

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

Code No.	Quantity	Description
6A	26	15 local Cameroonian project staff (from five projects); 5 national herbarium staff; 6 botanists/technicians from Ghana, Tanzania and Kenya sponsored by Earthwatch Europe as Earthwatch Fellows. Details in 6B.
6B	2 weeks	Two fortnight-long training sessions were provided for the above in “botanical inventory for conservation management”. Details of lectures etc are included in the expedition report.
7	1	Conservation poster on threatened plant species: <i>Kniphofia reflexa</i> , designed in Aug. 00, produced and sent out to the Bamenda Highlands Forest Project in Oct. 00 by Darwin Officer Ben Pollard.
8	25weeks	A total of 25 weeks were spent in Cameroon by Kew staff: Cheek (5 weeks), Mackinder (2 weeks), Owens (1 week), Gosline (5 weeks), Hinchcliffe (2 weeks) & Pollard (10 weeks) between Oct. 25 th and Dec. 30 th 2000 (Only 8 weeks were proposed in total originally).
9	52 species plans	Individual species treatments, including details on habitat threats and management suggestions were given for each of 52 taxa in the book “The Plants of Mount Oku....” (enclosed with this report).
10	2	The Plants of Mount Oku.... book gives descriptions and authoritative scientific names to assist identification of nearly 1000 plant species (enclosed in this report). A draft field guide to the montane trees of the Bamenda Highlands was produced in August 00, but not formally published. The Bamenda Highlands Forest project are interested in adapting it for use by their forest monitoring team in identifying tree species in their area.
11A	4 papers were published	For details see table 2
11B	6 papers	6 papers were submitted for publication between April and March, of which one was also published (see table 2 below), as follows: Cheek, M. & Sonké, B. A new species of <i>Oxyanthus</i> (<i>Rubiaceae-Gardeniinae</i>) from western Cameroon. Kew Bull. 55: 889-893. Cheek, M. Three new species of <i>Cola</i> (<i>Sterculiaceae</i>) from Mt Cameroon, Cameroon. Kew Bull. Cheek, M., Mackinder, B., Gosline, G. Onana, J-M. & Achoundong, G. The Phytogeography and flora of western Cameroon. Proceedings of the AETFAT Congress. Litt, A. & Cheek, M. <i>Korupodendron songweanum</i> , a new genus of <i>Vochysiaceae</i> from West-central Africa. Brittonia. Cheek, M. & Csiba, L. A revision of the <i>Psychotria chalconeura</i> complex (<i>Rubiaceae</i>) in Guineo-Congolian Africa. Kew Bull.

		Pollard, B. J. & Paton, A. A new rheophytic species of <i>Plectranthus</i> L. Hér. (Labiatae) from the Gulf Of Guinea. Kew Bull.
	2 articles	Two articles (in non-peer reviewed journals) were submitted for publication: Cheek, M. The Cameroon Checklists. Earthwatch African Fellows Programme Newsletter. Subm. 8 Feb. 2001. The Plants of Mount Oku and the Ijim Ridge, Cameroon. Kew Scientist. Subm. 19 Feb. 2001.
	1 book	Cheek, M., Onana, J-M. & Pollard, B.J. (2000). The Plants of Mount Oku and the Ijim Ridge, Cameroon, a Conservation Checklist. R.B.G., Kew, 220 pp.
13A	2	Two subsets of duplicates, with labels, were handed over in December 2000 to local conservation projects interested in building up reference herbaria: The Bamenda Highlands Forest Project and the Banyang Mbo Project. The latter are maintaining a separate herbarium for their specimens at the National Herbarium of Cameroon.
13B	1252	The National Herbarium was enhanced by handing over, in Dec. 2000, the top set of 1252 herbarium specimens gathered on the Nov.-Dec. 2000 expedition. Cibachromes (full size colour photographic prints) of 44 historic type specimens housed at Kew were delivered to the National Herbarium in December 2000.
15A	1 National press release	1 National Press Release was made in March 2001 to a CRTV journalist.
19A	1 National radio interview	A radio interview was given (jointly with a representative of the National Herbarium) to the national Cameroon radio station in November 2000 in which the newly published book, the Plants of Mt Oku was publicized..
23	£73,939	Total.

All outputs agreed in this period in the "Project Outputs" section of the Project Schedule were achieved in full. Several outputs scheduled for later years (principally 11B, the book.) were achieved ahead of schedule. Several additional project outputs were also achieved, or agreed project outputs were increased significantly (6A,B,7,9,10,).

Table 2: Publications

Type * (e.g. journals, manuals, CDs) Book	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Book	<i>The Plants of Mount Oku and the Ijim Ridge, Cameroon, a Conservation Checklist*</i> ; Cheek, Onana, Pollard 2000	Royal Botanic Gardens, Kew, London.	kewscbooks@rbgkew.org.uk	30
Journal	Cheek, M. Radcliffe-Smith, A. & Faruk, A. A new species of <i>Drypetes</i> (Euphorbiaceae) from Western Cameroon. Kew Bull. 55: 895-898(2000)*.	The Stationery Office and Royal Botanic Gardens, Kew, London.	kewscbooks@rbgkew.org.uk	45 (for the part in

Cheek, M. A synoptic revision of <i>Ancistrocladus</i> (Ancistrocladaceae) in Africa, with a new species from western Cameroon. Kew Bull. 55:871-882(2000)*	which these four papers, and numerous others, appear)
Cheek, M. & Csiba, L. A new species and new combination in <i>Chassalia</i> (Rubiaceae) of western Cameroon. Kew Bull. 55: 883-888(2000)*.	
Cheek, M. & Sonké, B. A new species of <i>Oxyanthus</i> (Rubiaceae-Gardeniinae) from western Cameroon. Kew Bull. 55: 889-893 (2000)*.	

The subject of dissemination activity is largely covered under item 6 above (impact & sustainability). At this early stage of the project we are mainly gathering and analysing data. Dissemination will increase in the last stage of the project.

8. Project Expenditure

Table 3: Project expenditure during the reporting period

9. Monitoring, Evaluation and Lessons

The Keeper of the Herbarium, R.B.G., Kew is responsible for monitoring the project at this institute. He made a visit to Cameroon in November 2000 to monitor the project at the National Herbarium, Yaoundé and then joined the expedition in the field at Banyang Mbo. He receives copies of e.g. annual project reports and has attended internal presentations on the Cameroon project at R.B.G., Kew. We understand through Valerie Richardson of the Darwin Secretariat that a representative from ECTF visited HNC (our main collaborator in Cameroon) in 00 to inspect our project and that it was reported that Dr Achoundong, the head, was happy with it. It was recommended however, that attention was given to supplying mounting paper to HNC. This is being addressed.

The project has already made two major, achievements that ensure concrete conservation action in western Cameroon. It was not envisaged that this would happen so early in the project. The achievements are:

1. *Government gazettment of two new protected areas on the basis of a 12 page report that we provided to WWF Cameroon.*
2. *A grant of \$1 million dollars to the project that supports the local communities protecting the Kilum-Ijim (Mt Oku and the Ijim Ridge) area from UNDP-GEF on the basis of the data we supplied on the threatened and endemic plant species of the area.*

Other achievements that meet the project objectives have been detailed under 4. (Progress).

With reference to this paragraph (taken from the schedule):

Developing the National Herbarium as a national centre for plant diversity has been achieved in part through:

- a) *receipt by HNC of the top set of herbarium specimens from the expeditions.*
- b) *experience and training of HNC staff achieved on these expeditions and will achieve on their training visits to Kew.*

c) *our involvement with local conservation projects has already enhanced communication between them and HNC.*

A taxonomically up-to-date checklist of species in western Cameroon: this will only be achieved at the end of the project, but the publications of new taxa and the book, "The Plants of Mount Oku....." are measurable steps towards this goal. Moreover, they are peer-reviewed: an indication of quality.

3 individual "protected area" checklists. One of the three has been completed and published, significantly ahead of schedule.

Using information from the checklists to enhance conservation by identifying, locating and mapping conservation priority species, proposing key areas for conservation and producing conservation posters. In the Mount Oku checklist, 52 Red Data species were identified and their locations given. Three of these species have been mapped. Mapping will accelerate in 01/02. Three conservation posters have been produced so far and more are scheduled. Advice has been given, through the Red Data chapter in the book, to the Kilum-Ijim Forest Project, which manages the area, and to forestry governmental officials in the area, and to the Minister of the Environment. The fact that our data is taken seriously, and acted upon is evident from the fact that significant new funding for one conservation project has been given, and that two new areas have received governmental gazettelement as protected areas on the basis of the data that we have provided as part of this project.

Learning from dissatisfaction at the Darwin Secretariat with financial reporting, we have resolved to submit claims quarterly rather than annually, and to submit the end-of-year claims ahead of the preferred Secretariat date of 28th Feb. for the financial year ending 5th April.

10. Author(s) / Date

Martin Cheek 26th May `01