



Report to Davis Expedition Fund Committee

Taxonomic revision of *Aframomum* in Africa - David Harris, Royal Botanic Garden Edinburgh.

My original proposal was to drive from the Central African Republic to Gabon via Cameroon. However I decided that since I only had two months and it would be better for me to restrict myself to working in only two countries, Cameroon and Central African Republic. Because of the state of the roads and the extra paper work necessary for importing a vehicle into Gabon I think this was the best way to use the limited time.

Objectives achieved.

1. I made 40 good specimens of *Aframomum*, including spirit material, seed, leaves dried in silica gel for DNA studies and photographs. The genus is almost impossible to revise without fieldwork because of the difficulty in identifying herbarium specimens. These collections will be a significant contribution to the taxonomic revision of the genus which will be published in 2000. Several of the collections will become types of new species. In addition, valuable additional material was collected of other poorly known *Aframomum* species.
2. I collaborated with staff of Limbé Botanic Garden in Cameroon. I spent 3 days identifying their herbarium and living collections of *Aframomum*. The herbarium at Limbé has been managed for the last 3 years by P. Tchouto (MSc Plant Taxonomy & Biodiversity, Edinburgh University 1995) and I was very impressed with progress he had made at that herbarium which I had last visited in 1994. I collected with the garden staff in their project area around Mount Cameroon. I also went on a 5 day trip with the Dr Ndam their Conservator to Nguti and Mount Kupé where we collected living *Aframomum* material to grow in the Garden at Limbé. We propose to continue our collaboration and they will maintain a living collection of *Aframomum* in Limbé.
3. I spent two days in Yaoundé working on *Aframomum* specimens at the National Herbarium which will be cited in the taxonomic revision. I met with Dr Achoundong the director of the Herbarium and we discussed future collaboration.
4. In the Central African Republic I collected leaf material dried in silica gel of *Lepidobotrys staudtii*. This species has for many years been the sole member of the family Lepidobotryaceae. Recently a new genus (*Ruptiliocarpon*) was discovered in Central America and placed in this family. This grouping has been controversial because the molecular evidence conflicts with the morphological data. I believe that the morphological evidence for them being in the same family is good. However chloroplast DNA sequence data will provide additional evidence. This investigation is being carried out by Prof Mark Chase at Kew to whom I have sent some of the material I collected. The Lepidobotryaceae is one of the few "unplaced" families in his recent phylogeny of the angiosperms.

5. I visited the study site in the Central African Republic of a D.Phil. student from Oxford University. I am a joint supervisor with Nick Brown at Oxford. The student is investigating the ecology of 4 species of Marantaceae which make up a significant proportion of the herb layer at this forest site (Dzangha-Sangha National Park). Three of the species are of important components of Gorilla and Chimpanzee diet and information on leaf and fruit production will be useful for our understanding of the ecology of these animals.
6. I collected 4 species of *Begonia* in Cameroon. This genus is being studied by 3 PhD students at the Royal Botanic Garden Edinburgh and the material will be used by these students for their phylogenetic and biogeographical research.
7. I visited Diane Doran's study site in Dzangha-Sangha National Park. Dr Doran of SUNY Brook University, (USA) has a Gorilla habituation study funded by NSF. I was invited to visit her research camp to help identify plants. I was able to help her, her assistants and her graduate students identify their unknown plants.
8. I collected in silica gel leaf material of 3 genera of Menispermaceae, including a rare monotypic genus endemic to the Congo Basin. This material is to be used in a collaborative project with Sara Hoot at the University of Wisconsin-Milwaukee (USA) on molecular phylogenetic study of this poorly known tropical family made up mostly of woody climbers.

Timetable

June and July 1999

- Week 1. Flew to Bangui, Central African Republic. Obtained research permission.
- Week 2. Arrived in Bayanga, Dzangha-Sangha National Park. Collected *Aframomum*. Meeting with D.Phil. student from Oxford. Discussed her research with National Park management team. Went into the field with her and showed her how to identify sterile Marantaceae leaves.
- Week 3. Put my vehicle back on the road, serviced it and drove from Central African Republic to Yaoundé, Cameroon.
- Week 4. Visited the National Herbarium in Cameroon. Drove to Limbé.
- Week 5. Collected *Aframomum* and *Begonia* on Mount Cameroon and surrounding area.
- Week 6. Collected *Aframomum* and *Begonia* around Nguti and Mount Kupé, Cameroon. Traveled back to Central African Republic.
- Week 7. Collected *Lepidobotrys staudtii* in Dzangha-Sangha National Park. Visited Diane Doran's study site, identified Gorilla and Grey-cheeked Mangabey food plants. Mothballed vehicle.
- Week 8. Returned to Bangui. Obtained export permit for specimens. Returned to Edinburgh.

Accounts

The following table gives a list of the expenses incurred. The ticket from Edinburgh to Bangui was higher than expected but no cheaper ticket was available. The total comes to slightly more than the £1900 awarded so no monies remain unspent. Fieldwork in this part of Africa is extremely expensive compared to many other parts of the world. I was only able to carry out this field work with the following additional support. My salary was paid by the Edinburgh Botanic Garden (Sibbald) Trust - The Davis Taxonomic Fund. WCS (New York Zoological Society) provided subsidised accommodation in Yaoundé and a contribution to fuel. Limbé Botanic Garden contributed staff time, a vehicle, driver and fuel. WWF-Central African Republic provided subsidised accommodation in Bangui. Diane Doran provided transport, food and accommodation in Dzangha-Sangha National Park,. The Dzangha-Sangha Project provided transport to Bangui.

Receipts are numbered for my own convenience and can be consulted if required. They will be kept for one year. The rate of exchange used is 11 French Francs and 1100 CFA Francs to £1.00 .

Item	Receipt number	Local Currency	Sterling
Malaria prophylactics	21		28.79
Airline ticket Edinburgh- Bangui			1116.00
Airport tax			37.70
Batteries	20		6.99
Vehicle parts	21		18.50
Film	22		49.78
Visa for Cameroon from London, includes postage and tube fare in London			50.00
Visa for Central African Republic	23	French Francs 1 000	90.91
Flight Bangui to Bayanga		CFA francs 200 000	181.82
Battery, number plates and oil filter for vehicle	1	91 120	82.84
Vehicle insurance	2	65 180	59.25
Accommodation in Yaounde	3	5 000	4.55
Engine oil	4	12 000	10.91
Accommodation Limbe	5	67 500	61.40
Accommodation Limbe	6	7 500	6.82
Accommodation Yokadouma	7	6 000	5.45
Accommodation Bangui	8	25 000	22.73
Fuel	9	16 000	14.55
Engine oil	10	8 920	8.11
Marker	11	1 000	0.91
Fuel	12	28 200	25.64
Fuel	13	9 400	8.55
Accommodation Nguti	14	5 000	4.55
Accommodation Bangui	15	35 000	31.82
Accommodation Bangui	16	35 000	31.82
Fuel	17	10 100	9.18
Road toll in Cameroon	18	5 000	4.55
Food for field assistants	19	25 420	23.11
Phytosanitary certificate	24	3 000	2.73
Certificate d'origine	25	2 000	1.82
		Total	2001.78