

DAVIS EXPEDITION FUND

REPORT ON EXPEDITION / PROJECT

Expedition/Project Title: NEOTROPICAL LOWLAND RAIN FOREST FIELD TRIP:
INTER AND EASTERN ANDEAN RAIN FORESTS,
COLOMBIA

Travel Dates: 17 May to 01 August 2015

Location: Putumayo, Meta, Boyacá and Norte de Santander -Colombia.

Group Members: Julieth Serrano

Aims: To collect specimens and leaf fragments of species of the plant family Sapotaceae at the inter and eastern Andean lowland rain forest of Colombia.

Outcome (not less than 300 words):-

INTRODUCTION

The aim of the project was to collect Sapotaceae specimens at the Lowland Rain Forest (LRF) of the inter-Andean valleys and the Eastern side of the Andes in Colombia. Sapotaceae is a focus group at the Royal Botanic Garden Edinburgh (RBGE) and a representative plant family of these ecosystems. Sapotaceae specimens were gathered to enhance the collections at the herbaria and at the DNA banks at the RBGE and the local collaborators in Colombia. Collecting in these areas will be a tool to increase our knowledge related to the species distribution and evolutionary history of ecosystems of high concern in the Neotropics, some of the world's richest in terms of biotic diversity.

Specifically, field work was carried out in the departments of Putumayo, Meta, Boyacá and Norte de Santander – Colombia. All activities were led by the applicant in collaboration with the Universidad Distrital Francisco Jose de Caldas (UDFJC) of Colombia and the Instituto Colombiano agropecuario (ICA). Currently the applicant is a third year PhD student at the Royal Botanic Garden Edinburgh/University of Edinburgh.

Expedition participants and Associates

Julieth Serrano – RBGE and University of Edinburgh

Moisés Rojas Salazar – UDFJC

Roció Cortez – UDFJC

Sergio Rodríguez - ICA

METHODS

The itinerary was followed as described in the initial proposal (Table 1). The final logistic arrangements were made in Bogota prior to the first collection trip to Puerto Boyacá. This included the gathering of equipment and meetings with partner institutions and guides. During this time further literature at local herbaria was revised. A full week collecting samples was spent in each of the four areas. After that another week was taken to dry and prepare the material to be deposited at the UDFJC. The collection team was integrated by the applicant, a field assistant and a local guide.

Collections for Sapotaceae specimens were made from June to July 2015 on the Eastern side of the Andes in the departments of Putumayo, Meta and Norte de Santander in Colombia. Specimens were also collected in the interandean valley of Puerto Boyacá in the department of Boyacá (Table 2 and Figure 1). To collect samples from trees up to 15 meters height, a trimmer was used (provided by the UDFJC).

Table 1. Schedule for the Sapotaceae expedition 2015. Two weeks per locality were spent. This including collection days and an extra week per locality to process the material. All samples were deposited at the UDFJC herbarium.

DATE	ACTIVITY
17 May 2015	Arrival to Bogotá from Edinburgh
18-30 May 2015	Meetings with local collaborators including the field assistant. Materials gathering.
31 May 2015	Arrival Puerto Boyacá from Bogotá
01 June 2015	Briefing to local guide/climbers
02-04 June 2015	Collecting day
05 June 2015	Collecting day/Contingency day
06 June 2015	Return to Bogotá
07 June 2015	Resting day
08-12 June 2015	Material processing at UDFJC
13 June 2015	Arrival to Villagarzón from Bogota
14 June 2015	Briefing to local guide/climbers
13-17 June 2015	Collecting day
18 June 2015	Collecting day/Contingency day
19 June 2015	Return to Bogotá
20 June 2015	Resting day
21-25 June 2015	Material processing at UDFJC
26 June 2015	Arrival to San Juan de Arama from Bogotá
27 June 2015	Briefing to local guide/climbers
28-30 June 2015	Collecting day
01 July 2015	Collecting day/Contingency day
02 July 2015	Return to Bogotá
03 July 2015	Resting day
04-08 July 2015	Material processing at UDFJC
09 July 2015	Arrival La Gabarra from Bogotá
10 July 2015	Briefing to local guide/climbers
11-13 July 2015	Collecting day
14 July 2015	Collecting day/Contingency day
15 July 2015	Return to Bogotá
16 July 2015	Resting day
17-21 July 2015	Material processing at UDFJC
22-31 July 2015	Resting days/Contingency days
01 August 2015	Return to Edinburgh

For trees reaching more than 15 meters, samples were collected by climbing the individual. Safety gear such as harnesses and ropes were always used, and security protocols were followed.

Table 2. Localities visited during the Sapotaceae expedition 2015. Four localities were visited for a week each. Local collaborators were present at all sites.

DEPARTMENT	MUNICIPALITY	LOCALITY	AREA	LAT	LONG	LOCAL COLLABORATOR
Putumayo	Mocoa	Mocoa/Villagar-zon	Zona de amortiguación PNN Serranía de los Churumbelos.	1.0756	-76.6262	UDFJC
Meta	Vista Hermosa	San Juan de Arama	Cercanías PNN sierra de la Macarena	3.2929	-73.9295	
Boyacá	Puerto Boyacá	Serranía de las Quinchas	Serranía de las Quinchas. Reserva natural de aves del Paujil.	6.0450	-74.2670	
Norte de Santander	Tibú	La Gabarra	Cercanías PNN Catatumbo Bari	8.9380	-72.9678	ICA

LOWLAND RAIN FOREST OF CONTINENTAL COLOMBIA

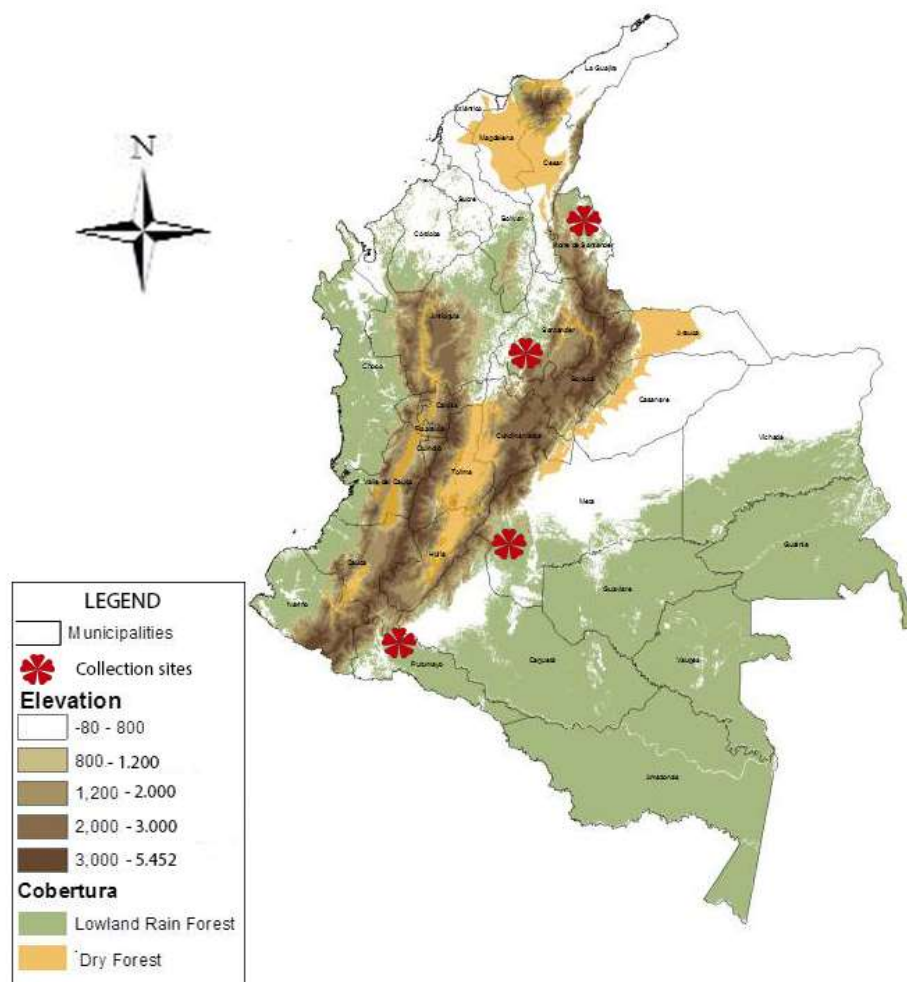


Figure 1. Collecting sites in the lowland rain forests of Colombia. Specimens and leaf fragments were collected on the Eastern side of the Andes and one inter Andean valley. From South to North (in red) in the departments of Putumayo, Meta, Boyacá and Norte de Santander. Cover land units of Rain forest are depicted as proposed by IDEAM *et al.* (2007), and dry forest areas as adapted from the WWF Ecoregions (Olson *et al.*, 2001).

Specimens were mounted and kept on newspaper away from moisture. Photos, coordinates and field notes were gathered for each of them (Photo 1).



Photo 1 Collection and mounting of specimens. On the left: Collection of specimens from trees reaching less than 5 metres height. Right: Specimen classified within the genus *Pouteria* after preparations for the temporary mounting on newspaper.

Samples were deposited at the Herbarium at the UDFJC where duplicates are being processed. After this, duplicates will be sent to the herbarium at the RBGE. Fragments for DNA extraction were taken and are currently being used for molecular analyses. Further work will aim to determine the geographic distribution of the family to infer areas of high conservation priority in Colombia.

RESULTS

A total of 227 specimens were collected. 107 in Putumayo, 27 in Meta, 48 in Boyacá and 45 in Norte de Santander. All classified within the Chrysophylloideae subfamily (Photo 2). This material is currently being processed; however, the partial identification includes the following taxa:

- *Chrysophyllum lucentifolium*
- *Chrysophyllum manaoense*
- *Chrysophyllum prieurii*
- *Chrysophyllum venezuelaense*
- *Ecclinusa lanceolata*
- *Ecclinusa ramiflora*
- *Micropholis crotonoides*
- *Micropholis guyanensis*
- *Micropholis venulosa*
- *Pouteria baheiana*
- *Pouteria buenaventurensis*
- *Pouteria cf clurlandil*
- *Pouteria cf subrostrata*
- *Pouteria cf. reticulata*
- *Pouteria cuspidata subsp. cuspidata*
- *Pouteria cuspidata subsp. robusta*
- *Pouteria sp. aff collina*
- *Pouteria torta*
- *Pouteria venosa*



Photo 2 Plant material collected on the Amazonian side of the Andes. On the left: Sapotaceae's seeds. On the right: fruit and leaves. This material was part of the collections made at the Putumayo department.

BUDGET

A total of £3739 was provided by the Davis Expedition fund. This was used to partially cover the cost of the expedition. The rest was provided by the applicant (Table 3).

Table 3. Sapotaceae expedition 2015 costs. Materials provided by the local collaborators and British institutions are not included. The total cost was higher than expected. However, the fraction that was not covered by the funds provided by the Davis' committee, was covered by the applicant.

LOCATION	DESCRIPTION	COST (GBP)
Pre-field work expenses	Flight ticket Edinburgh – Bogota – Edinburgh	1342
	Materials (Ropes, batteries, news paper, plastic bags, harness, plastic cases, machetes, press, etc)	253
Serranía de las Quinchas (Puerto Boyacá)	Meals (applicant + field assistant)/day *5 days	87
	Transportation within Bogota	14
	Bus ticket Bogotá - Puerto Boyacá	12
	Bus ticket Puerto Boyacá - Bogotá	10
	Transportation from Puerto Boyacá to collecting sites	83
	Salary field assistant * 5 days	41
	Accommodation (applicant + field assistant)/day *4 nights	33
Buffer zone National Natural Park Los Churumbelos (Villagarzon)	Bus ticket Bogota- Villagarzón	18
	Transportation within Bogota	15
	Transportation from Villagarzón to collecting sites	45
	Flight Villagarzón-Bogotá (applicant + field assistant)	214
	Field assistant/Supporting climbers/local guide's salaries/day*5 days	140
	Accommodation (applicant + field assistant)/day *4 nights	77
	Meals (applicant + field assistant)/day *5 days	106
Buffer zone National Natural Park Serrania de la Macarena (San Juan de Arama)	Bus ticket Bogotá - Villavicencio	6
	Transportation within Bogota	10
	Taxi granada San Juan de Arama	3
	Transportation in the field	28
	Taxi San Juan de Arama-Granada	3
	Transportation Granada-Bogota (applicant + field assistant)	18

	Meals (applicant + field assistant)/day *5 days	79	
	Field assistant/Supporting climbers/local guide's salaries/day*5 days	94	
	Accommodation (applicant + field assistant)/day *4 nights	33	
Buffer zone National Natural Park Catatumbo-Bari (La Gabarra)	Flight ticket Bogotá-Cucuta (applicant + field assistant)	263	
	Airport fee (applicant + field assistant)	6	
	Transportation within Bogotá	22	
	Taxis within Cucuta	6	
	Bus Cucuta-Tibú	5	
	Bus Tibú-Gabarra	17	
	Bus Gabarra-Cucuta	22	
	Canoe Rental	150	
	Meals (applicant + field assistant)/day *5 days	104	
	Accommodation (applicant + field assistant)/day *4 nights	45	
	Field assistant/Supporting climbers/local guide's salaries/day*5 days	260	
	Currency exchange's fees		155.3
	TOTAL		£3,819

ACKNOWLEDGEMENTS

I will like to thank the Davis expedition fund committee for supporting this initiative and allowing the exploration of ecosystems of high conservation priority. The enhancement of plant and DNA collections in the UK and in Colombia is essential for the discovery of new taxa and the evaluation of conservation strategies.

I would like to express my gratitude to the University of Edinburgh and the Royal Botanic Garden Edinburgh which in many ways contributed to this study. Finally, I will like to thank the local institutions in Colombia, the collection team and the local communities