DAVIS EXPEDITION FUND

REPORT ON EXPEDITION / PROJECT

Expedition/Project Title:	**The role of climatic and edaphic variables and historical biogeography in vegetation types and domain's distribution in Lowland Tropical South America**
Travel Dates:	06th – August to 15th - September
Location:	Bolivia
Group Members:	Pedro Luiz Silva de Miranda
Aims:	Understand the role of soils in determining broad-scale tree species composition patterns – revealing how important soil-related variables are in relation to climate.

Outcome (not less than 300 words):-

Aim of fieldwork:

Collect soil samples from different vegetation types distributed in the Bolivian Lowlands.

Fieldwork and outcomes:

The work consisted of collecting soil samples from different vegetation types across various regions in Bolivia. In total, we drove 10.000km and collected samples from 58 sites located at the foot of the Andes, the dry forests from the Chiquitania and Chaco besides the savannas and semideciduous forests from Santa Cruz department. All of the visited sites were selected considering the existence of good woody plant floristic inventories for the area, ease of access through roads and trails, besides being well conserved and possessing an interesting flora from an ecological perspective. We were able to visit most of the sites we planned to get soils samples from and we did not encounter any difficulties along the way. We had to let a few locations go for reasons varying from danger (some of the sites we wanted to visit are located in regions controlled by drug-dealers), private property and impossibility to access the site through roads or walking.

The samples collected were duly packed and transported to Brazil where they will be analysed by INPA (National institute of research in the Amazon) and the soil laboratory at UFLA (Federal University of Lavras). We opted to send our samples to

two different laboratories as a way of controlling how small differences in methodology could be affecting our results. We expect to receive the results within six months.
It is hard to make any inferences at the present time, but what can be said is that the sites visited vary greatly in soil depth, colour, texture and water retention capacity, besides varying significantly floristically. This gave the entire research team more reasons to believe that, even though climate related variables may be the most important factors controlling the distribution of tree species and vegetation types at large spatial scales, soils are also of high importance on determining these patterns.

Methodology:

We collected soil samples from 58 locations (Figure 1, Table 1) spread across Lowland Tropical Bolivia and the lower portion of the Andes (bellow 1.500 meters of altitude). On reaching the target site, we would collect at least 5 soil cores with 30cm of depth, mix the cores together and dry them. When they were dry enough, we would weight and pack the samples in paper bags. For various reasons, some sites did not have soils with 30cm of depth, in these cases we collected the soil available till we reached the maximum depth possible.

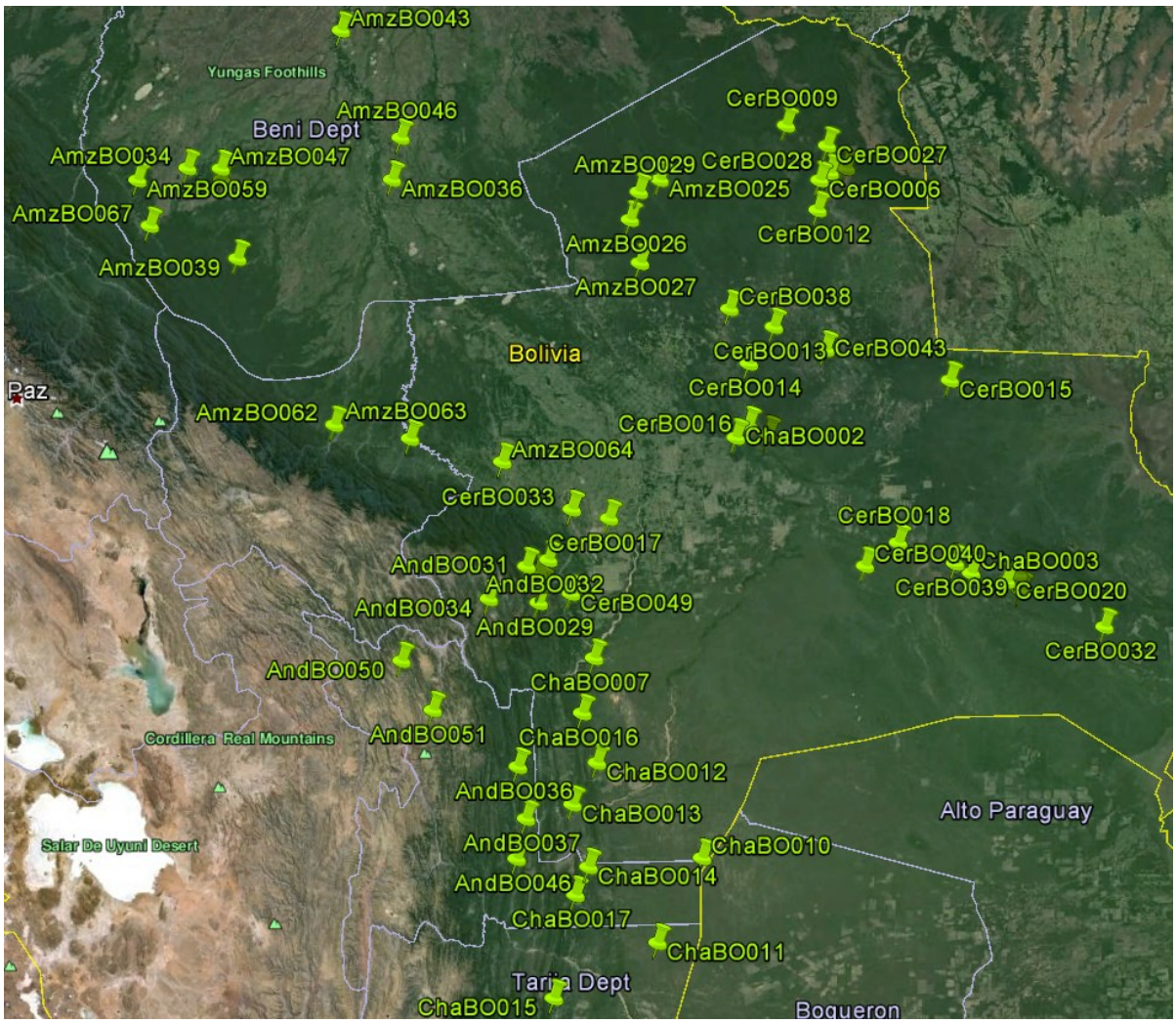

Figure 1: Geographic location of all sites visited during the expedition to Bolivia in 2015

Table 1 – List of sites visited during the expedition to Bolivia

AreaCode	Locality	Latitude	Longitude	Domain
AmzBO025	Río Negro, bosque semi-decíduo	14°59’29”S	62°35’18”W	Amazonia
AmzBO026	Cerro Pelado, bosque semi-decíduo	15°19’20”S	62°50’50”W	Amazonia
AmzBO027	La Chonta, bosque semi-decíduo	15°40’44”S	62°46’12”W	Amazonia
AmzBO029	Río Negrillo, bosque semi-decíduo inundable	15°05’18”S	62°46’27”W	Amazonia
AmzBO032	La Pascana, bosque de tierra firme	13°43’47”S	66°19’05”W	Amazonia
AmzBO034	San Borja, Río Maniqui, bosque inundable	14°46’07”S	66°38’49”W	Amazonia
AmzBO035	Laguna Normandia, bosque inundable	14°52’30”S	66°21’12”W	Amazonia
AmzBO036	Trinidad, bosque inundable	14°56’17”S	64°52’38”W	Amazonia
AmzBO043	Santa Ana del Yacuma, bosque estacional inundable	13°39’44”S	65°18’04”W	Amazonia
AmzBO046	San Javier, sabana arbolada inundable	14°35’25”S	64°48’14”W	Amazonia
AmzBO047	El Porvenir, sabana arbolada inundable	14°47’32”S	66°21’25”W	Amazonia
AmzBO059	Pilón Lajas, Río Colorado, bosque húmedo preandino	14°50’43”S	67°05’31”W	Amazonia
AmzBO062	Villa Tunarí, bosque húmedo preandino	16°57’28”S	65°25’29”W	Amazonia
AmzBO063	Estación El Sajta, bosque húmedo preandino	17°05’13”S	64°46’05”W	Amazonia
AmzBO064	Yapacaní, bosque húmedo preandino	17°17’53”S	63°58’32”W	Amazonia
AmzBO067	Pilón Lajas, Cumbre Pilón, bosque húmedo subandino	15°14’19”S	66°59’07”W	Amazonia
AndBO029	Río Acero, bosque semi-decíduo preandino	18°27’48”S	63°41’09”W	Southern Andean
AndBO031	Samaipata, bosque semi-decíduo preandino	18°09’22”S	63°47’24”W	Southern Andean
AndBO033	Bella Vista, bosque decíduo preandino	18°19’02”S	63°40’24”W	Southern Andean
AndBO034	Vallegrande, bosque decíduo preandino	18°25’08”S	64°06’57”W	Southern Andean
AndBO036	Monteagudo, bosque decíduo preandino	19°47’56”S	63°54’12”W	Southern Andean
AndBO037	Parapetí, bosque decíduo preandino	20°13’44”S	63°50’32”W	Southern Andean
AndBO050	El Palmar, bosque enano espinoso interandino	18°54’27”S	64°53’13”W	Southern Andean
AndBO052	Millares, bosque enano espinoso interandino	19°29’13”S	65°11’19”W	Southern Andean
CerBO003	Cerro Mutún, cerrado rupícola	19°11’49”S	57°52’34”W	Cerrado
CerBO009	Cerro Pelão, bosque semi-decíduo chiquitano	14°32’21”S	61°29’53”W	Cerrado
CerBO013	Ñuflo de Chávez, bosque semi-decíduo chiquitano	16°12’56”S	61°37’35”W	Cerrado
CerBO014	Las Trancas, bosque semi-decíduo chiquitano	16°31’15”S	61°50’48”W	Cerrado

CerBO015	San Rafael, bosque semi-decíduo chiquitano	16°39’22”S	60°06’23”W	Cerrado
CerBO016	San Miguelito, bosque semi-decíduo chiquitano	17°02’03”S	61°51’37”W	Cerrado
CerBO017	Santa Cruz de la Sierra, bosque semi-decíduo chiquitano	17°46’48”S	63°03’54”W	Cerrado
CerBO018	San José de Chiquitos, bosque semi-decíduo chiquitano	18°00’01”S	60°33’55”W	Cerrado
CerBO020	Serranía de Santiago, bosque semi-decíduo chiquitano	18°19’01”S	59°36’54”W	Cerrado
CerBO027	Monte Cristo, La Toledo, bosque chiquitano ribereño	14°42’40”S	61°09’15”W	Cerrado
CerBO028	Monte Verde, bosque chiquitano ribereño	14°56’27”S	61°07’59”W	Cerrado
CerBO032	Santa Ana de Chiquitos, bosque decíduo chiquitano	18°41’33”S	58°44’08”W	Cerrado
CerBO033	Terevinto, bosque semi-decíduo chiquitano	17°42’13”S	63°23’31”W	Cerrado
CerBO034	Quiapaca, bosque decíduo chiquitano	18°15’40”S	59°30’19”W	Cerrado
CerBO038	Santa Rosa de la Roca, cerrado boscoso mesotrófico	16°04’18”S	62°00’43”W	Cerrado
CerBO039	Serranía de Chochis, cerrado boscoso mesotrófico	18°09’54”S	60°03’59”W	Cerrado
CerBO040	Campamento Tucavaca, cerrado boscoso mesotrófico	18°11’15”S	60°51’19”W	Cerrado
CerBO041	Sierra de San Pablo, cerrado boscoso mesotrófico	17°06’28”S	61°41’34”W	Cerrado
CerBO043	Estancia Cacarachi, cerrado	16°24’43”S	61°11’17”W	Cerrado
CerBO044	Serranía de Santiago, cerrado	18°23’34”S	59°29’23”W	Cerrado
CerBo047	Flor de Oro, sabana inundable de termiteros	13°32’16”S	61°02’18”W	Cerrado
CerBO049	Río Seco, cerrado preandino	18°23’28”S	63°24’18”W	Cerrado
CerBO050	Bella Vista, cerrado rupícola andino	18°12’59”S	63°41’41”W	Cerrado
ChaBO002	San Lorenzo, bosque decíduo chaqueño	17°08’04”S	61°58’20”W	Gran Chaco
ChaBO007	Arenales de Guanacos, chaco seco de médanos	18°54’54”S	63°13’20”W	Gran Chaco
ChaBO010	Hito III Villazon, chaco seco	20°35’04”S	62°18’09”W	Gran Chaco
ChaBO011	Cabo Juán, chaco seco	21°16’54”S	62°41’43”W	Gran Chaco
ChaBO012	Charagua, chaco de serranía	19°46’31”S	63°12’27”W	Gran Chaco
ChaBO013	Camirí, chaco de serranía	20°07’12”S	63°25’41”W	Gran Chaco
ChaBO014	La Muela del Diablo, chaco de serranía	20°38’09”S	63°18’01”W	Gran Chaco
ChaBO015	Aguarague, chaco de serranía	21°43’54”S	63°37’46”W	Gran Chaco
ChaBO016	Cerro Yaraeta, chaco de serranía	19°22’08”S	63°20’05”W	Gran Chaco
ChaBO017	Macharetí, chaco de serranía	20°52’06”S	63°25’23”W	Gran Chaco

Control of Expenses

Expenses	Date	Amount(£)
GPS	02/07/2015	184
Tickets	06/07/2015	1321.45
Gasoline	whole trip	425.8
Toll	whole trip	34.8
Car rental	14/08/2015	1253.7
Car rental	02/09/2015	1137.41
Car rental	10/08/2015	130.03
Accomodations	whole trip	304.5
Food	whole trip	504.17
Field assistants	Whole trip	567
Samples shipment	08/09/2015	44.2
Samples shipment	26/10/2015	46.5
Samples shipment	14/09/2015	60
Supplies	whole trip	50
Total		6063.56