

DAVIS EXPEDITION FUND

REPORT ON PROJECT

Project Title: 'Historical assembly of seasonally dry tropical forest diversity'

Travel Dates: 1th April - 12th May 2008.....

Location: Seasonally dry tropical forests in Rio Marañon valley, Departamentos Cajamarca and Amazonas, Peru, South America.....

Group Members: Tiina Sarkinen (RBGE/University of Oxford, UK), with Peruvian counterparts Sylvia D'urand and Aniceto Daza.....

Aims: To gather species abundance data from a botanical inventory of the northern Marañon valley, Peru, and to analyse the species abundance data in the neutral ecological framework (Hubbel 2001) to test the hypothesis of long term isolation and biome stasis in interAndean valley SDTF supported by molecular phylogenetic data.

OUTCOME (not less than 300 words):

The field trip to Northern Marañon took place in spring 2008, and the timing of the field trip from 1st April until the end of May was perfect as the rains had started early this year, and many species were fruiting and flowering. Three localities of relatively undisturbed (all disturbed at some level by past selective logging) seasonally dry tropical forest patches within the Marañon valley were used, and three 1ha plots were sampled. Altogether, ca. 16,000 stems were counted and measured. The species abundance data from Marañon can now be used to estimate speciation and migration rates for communities using neutral ecological models. The results will be used in combination with molecular phylogenetic data to test the hypothesis of dispersal limitation and long term isolation and stasis in the interAndean valleys SDTFs suggested by preliminary data.

During the 35 days spent on the field (including travel), the field team gathered quantitative species abundance data for three 1ha plots, all located in seasonally dry tropical forests in northern Peru. Voucher specimens were collected from the total 58 species encountered in the 1ha plots for species level identification. General collections were also done to complement the specimens collected from the plot, as many species were encountered flowering or fruiting close to roadsides and fields. Altogether 190 plant specimens were collected, most collections accompanied by digital photos and silica gel leaf material for DNA samples. Duplicates of the herbarium specimens are kept at Universitario Nacional Agraria La Molina (MOL) and Royal Botanic Garden Edinburgh (E). Composite soil samples were collected for all three 1ha sample sites, and are currently being analysed at Universitario Nacional Agraria La Molina for basic characterisation of the soil conditions.

The tree 1ha plots were sampled according to the RAINFOR methodology (Phillips and Baker 2002) with the exception that all stems ≥ 2.5 cm at 1.3m breast height (DBH) were recorded. Plot 1 was located close to Jaén (Departamento Cajamarca, Provincia Jaén) at Gota de Agua, 5°41'33.30''S and 78°46'03.60''W (800m altitude). Plot 2 was located further north close to Perico (Cajamarca, San Ignacio) at 5°23'00''S and 78°47'07.00''W (472m altitude). Plot three was furthest south near Cumba (Amazonas, Utcubamba) at 5°55'40.70''S and 78°39'60.30''W (450m altitude). Total number of stems encountered per plot was ca. 5,257, and the total number of stems measured was ca. 16,000. The exact number of stems and species encountered per plot is still to be tabulated once all the data is entered into database. Altogether the three 1ha plots represented the same SDTF vegetation type with very similar species composition and forest physiognomy.

References

Phillips, O., and T. Baker, 2002. RAINFOR - Field manual for plot establishment and remeasurement. <http://www.geog.leeds.ac.uk/projects/rainfor/projdocs.html>