

Katie Wilkinson Scholarship Report

Comparing the different rates of decomposition of organic material in two Amazonian forest types.

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The Projecto Medio Jurua works in two multi use sustainable reserves; the RDS Uacari and the RESEX reserves which sit on the banks of Rio Jurua, one of the largest white water tributaries of the Amazon River. The forests within the two reserves fall broadly into two forest types; varzea and terra firme. Varzea forest lie directly alongside the river and are annually flooded during the wet season, approx nov-june, in contrast terra firme lies on slightly higher ground and remain dry for the entire year. The Rio Jurua is a white water river, meaning it has its headwaters in the Andes and so contains high levels of sediment which make the water a light brown colour, as oppose to the black waters of rivers that are born in the Amazon basin. The annual flooding of varzea forest by the sediment rich white water provides an annual influx of nutrients leaving soils, and thus the whole ecosystem, in varzea forest more nutrient rich than in terra firme.



Rio Jurua

My research project worked alongside existing research being undertaken by the Projecto Medio Jurua and aimed to study how the decomposition of different naturally occurring organic nutrient sources differs between the two forest types. We used cattle femurs and leaf litter bags as models for naturally occurring animal bones and leaf litter. It would be expected that as terra firme is so much more nutrient starved than varzea the organisms in the forest would react much faster and more efficiently to these nutrient sources and so decomposition would occur at a greater rate.

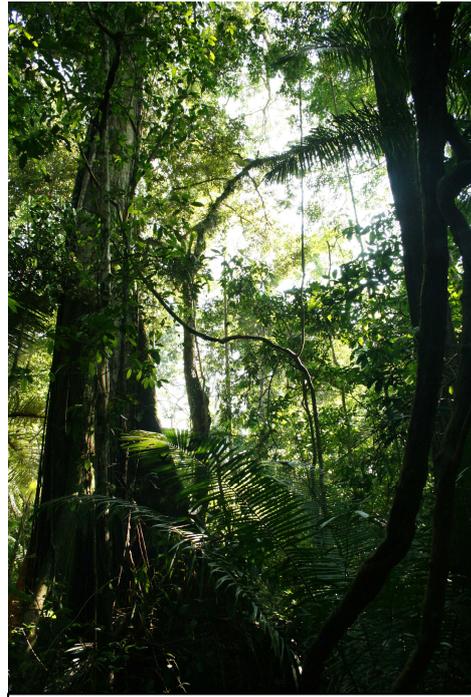


Weighing and measuring the bones in the field

Three transects in varzea 29 bones and three transects in terra firme with 33 bones were walked on a weekly basis and the weight, length and width of the bones were measured along with notes taken on insect and fungal coverage, presence of large animal tracks or marks and a rough indication of the visual condition of the bone. Due to exceedingly high levels of rain fall this year we had to wait about a month for the varzea forest to dry out and so the bones were placed a month later in

varzea forest than terra firme, this meant I monitored bones in terra firme for 10 weeks and varzea 6. Monitoring of the bones has continued after my return to England by local field assistants and will continue at least until February, this data will not be used in my dissertation but will hopefully be used for publication.

720 Leaf litter bags were placed along three transects in both varzea and terra firme and each month, for the next year, one will be removed and dry weighed, leaving 30 data points in each habitat. This research project took longer than expected to set up and so was only up and running towards the end of my time in Brazil, it will not form part of my dissertation write up but will hopefully be used for publication and as part of the wider remit of the projects work once it has finished in a years time.



Varzea Forest

Preliminary data analysis has shown the bones in varzea decomposing faster than the bones in terra firme contrary to what we were expecting, however I suspect that this is because the bones when placed in the field still had a lot of flesh and connective tissue attached, and it is the loss of this which accounts for the majority of the initial weight loss. The different rates of flesh loss in the two habitats appear to be mainly down to differing insect communities with maggots appearing in much higher numbers in varzea than terra firme. Hopefully more indepth data analysis will reveal more accurately the patterns and causes of decomposition between the two bone sites.



Outside of my academic pursuits my time in the Amazon was amazing, being able to live in and learn about such a unique ecosystems that is so staggeringly different to anything that you would come across in the UK was a real privilege. Things that I previously considered once in a lifetime experiences I was able to experience on weekly if not daily basis, canoeing along misty amazonian streams and rivers, fishing; with lines, throwing nets and bows and arrows, seeing wildlife such as river dolphins, macaws, parrots and howler monkeys. One of the greatest challenges I faced was that of Portuguese, I arrived with no knowledge of the language and only a basic knowledge of Spanish, to find myself one of four english speakers along a 400km stretch of river. Out of necessity I learnt functional portuguese very quickly and by the end of my time

in Brazil I was able to give a presentation on my work in Portuguese to the Monitors who work for the Projeto Medio Jurua and the projects partners.



Some friends I made a long
the way

I would like to offer my deepest gratitude for The Katie Wilkinson Research Scholarship that I received as due to the remoteness of the study site my costs in arriving at the project were substantial and the charities support was invaluable.