

# JAMES RENNIE BEQUEST

## REPORT ON EXPEDITION/PROJECT/CONFERENCE

**Expedition/Project/  
Conference Title:** Operation Wallacea Biodiversity research expedition

**Travel Dates:** 13th June – 10<sup>th</sup> July 2015

**Location:** Pacaya Samiria reserve, Peru

**Group member(s):** Fergus Eakin

**Aims:** To assist in the long term biodiversity monitoring of the Pacaya  
Samiria reserve as a research assistant.

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### **OUTCOME (not less than 300 words):-**

The purpose of this expedition is to collect primary data on the biodiversity of the Pacaya Samiria reserve throughout the dry season: June to August. This reserve is an important area of study due to the rich ecology it supports and its use as a resource by local indigenous populations for hunting and other raw materials. The habitat type is called Varzea forest which is defined as low lying flooded rainforest. In the wet season 95% of the land is flooded due to the water level rise in the Marañón and Ucayali. Two major rivers which define the borders of the reserve. It is the meandering of these rivers and their huge floodplains which has produced this habitat. With an area greater than 20000km<sup>2</sup>, which is roughly the size of Wales, this is one of the largest protected areas in Peru. Some of the species which this habitat supports include a high population of dolphins and fish, 12 species of primates and giant river otters. The latter of which have only recently returned to the reserve since they were over hunted. It is also the last remaining refugee for the Amazon manatee, an endangered species which is hunted by the local people. Therefore, the conservation aim for this reserve is to ensure that the locals only exploit it in a sustainable manner so that the species it supports can still thrive. Data has been collected at this site now for more than 15 years. The direct application of this research is to critically analyse the effectiveness of the conservation strategy in this reserve which uses community based techniques. Due to the long term nature of this research and the sensitivity of Varzea forest to changes in extreme water level it also provides a vital opportunity to study the effects of climate change on the biodiversity.

The biodiversity data was collected using 14 different surveys. As a research assistant I learned about the methodology and gained hands on experience with all of them. Therefore, the variety of techniques I learned in order to complete them all is very diverse. The most commonly used technique is a line transect survey which was used on the rivers for river dolphins, wading birds, mammal transects, caiman and fishing bats and used on the land for mammal transects and amphibians in order to count their population size. Each of these provided an illustration of how this theoretical method has to be tailored to the individual survey. All the aquatic transects used a distance of 5km because it is easy to travel that far whilst counting on a boat. Whereas the terrestrial mammal transect used a distance of 2km and the terrestrial amphibians used a distance of 500m. These in turn required a slower pace and more detailed searching. Some surveys require extra equipment. The fishing bat survey used a microphone that could listen to their calls which are at too high a frequency for the human ear to hear naturally. The Caiman survey involved catching and releasing each individual we spotted so that their weight and length could also be recorded.

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A second method used was point counting. Again this was applied in different methodologies. The Macaw survey took eight point counts 500m apart from one another along a transect on the river, with each point lasting 15 minutes and any macaws seen from that location were counted. Then there was the aquatic amphibian survey which used a random location in floating vegetation along the river. From this location we would reach over the side of the boat and catch as many frogs as we could in 10 minutes. Each frog would then be released after its species, length, weight and sex had been recorded. In order to collect data on the habitat survey a wide range of survey techniques were used. A method using ropes to form triangles ensured that the 20m square survey area could be marked out accurately on the ground. Then the canopy cover, understorey plant density, height of five tallest trees, width and species of all trees above a certain height and percentage land area of different plant species were all recorded. Finally other methods included mist netting in order to record understorey birds, using rod fishing and nets for the fish survey and camera trapping in order to record mammal population and behaviour.

All of these surveys highlighted many skills which a field ecologist needs. For example a thorough basic knowledge on species identification using Latin names and common names was important for the surveys. With some such as the amphibian survey needing much more knowledge than other surveys such as Macaws due to the diversity of the species being surveyed. Each survey then uses different skills to identify the species from one another. I found that these are best learnt in the field. For example the macaws are often identified by sound, the dolphins are identified by their swimming technique and the understorey birds are identified by a wide range of specific morphological features.

In order to complete the research on this expedition it became quickly clear that working with local Peruvians as guides is very important. These were people who hadn't necessarily studied ecology at an educational institution or read any textbooks. Instead much of their knowledge simply came from growing up in the area and learning from those around them. There was always one of these guides on each of the surveys and it was often them who spotted the monkeys or caiman so that we could record the results. Their identification skills in the field came from their experience of being out there and knowing what to look for. It was inspirational to see how well some of them knew their environment. This was also very important as it then involved the local communities into the conservation of the reserve. In the past it had been proven that conservation of the Pacaya Samiria reserve failed to succeed without collaboration with the local people. Communicating with these guides also involved learning some Spanish, the national language of Peru, which is great fun. Outside of the surveys it was very interesting to talk to these guides to learn more from them and find out how it is they live in this area. It is clear how this idea of communicating with local people is transferable to nearly all conservation or environmental projects as there may always be valuable knowledge worth learning.

Participating and gaining field experience in each of these surveys took up the first two weeks of the expedition. As I was at the research site for four weeks I was then able to specialise in one of the surveys. For this I chose the wading bird survey and for a number of reasons. This involved two surveys every day. The first from 5:30-9:00am (sunrise) and the second from 4:00-6:00pm (sunset). Many members of the expedition would agree these were the best times to be out in the rainforest. The temperature was still low enough to be comfortable before the mid-day heat and everything was very alive. Once specialised I discovered how much satisfaction can come from ecological fieldwork when you have the knowledge to identify all the species and complete the survey unsupervised by the full time ecologists who ran the surveys. I quickly realised I became very passionate to get the results collected every day. This is knowledge which I will use to inspire me through my ecology degree and future career. By the end of the expedition nothing was more exciting than identifying a species that hadn't been seen yet on the survey. Once I could identify each species and I spent time in the field with them, I found I even learnt other details such as the

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minor habitats where I would find each species and their individual nesting sites in the surveying area. Specialising like this highlighted the importance of collecting the same data every day even though it may inevitably have a repetitive nature for the ecologist.

Overall this experience gave me so much inspiration and new ideas on the subject of ecology. It was an intense four weeks of learning which flew past because of how enjoyable it was. The rainforest has become a place I have fallen in love with and I am definitely going to miss it.

I would like to express my thanks to the James Rennie Bequest.

Kind regards,  
Fergus Eakin