JAMES RENNIE BEQUEST

REPORT ON EXPEDITION/PROJECT/CONFERENCE

Expedition/Project/ Conference Title:	Volunteering with Biodiversity and Sustainability Reasearch with Operation Wallace
Travel Dates:	10th July 2015 until 11th August 2015
Location:	Pacaya-Samiria National Reserve, Loreto Provence, Peru
Group member(s):	Rachel Murray-Watson
Aims:	This project was part of a long-term biodiversity monitoring programme in the Pacaya-Samiria National Reserve in Peru. Operation Wallace have been part of the initiative for six years, and have been focussing on how climate change has impacted the biodiversity and productivity of the region. My aim was to assist in collecting data to help researches document the emerging trends in the reserve.
	The organisation also have close ties with native inhabitants of the forest, and along with helping policy makers form legislation to protect the reserve, they help set sustainable harvest limits with the indigenous peoples. These help ensure that, in these changing times, that the populations will not be left destitute from current over-harvesting.

OUTCOME (not less than 300 words):-

The following are summaries of the main projects with which I was involved.

Macaws
Macaw populations were severed twice daily. The surveys consisted of five to ten point counts along different aquatic transects, with each point situated 500m apart and surveyed for fifteen minutes. All individuals sighted and group species and number were recorded.

Wading Birds
Two daily surveys were conducted, which were made up of 3km or 5km aquatic transects. The total number of wading birds sighted were counted, as well as species and substrate. This technique did require some estimation, as birds regularly numbered in their thousands.

Transects
Terrestrial transects were roughly 5km in length, and all game species, arboreal and terrestrial animals sighted whilst walking the transect were recorded. The perpendicular distance between the animal and the transect was recorded (to later be used in density-estimation software), as well as the activity the animals was partaking in.

Group composition of surveyors was kept roughly the same (one guide, one biologist, 5-6 volunteers) throughout the surveys to try and maintain some consistency in survey effort, though the degree of competency observed among the volunteers varied, which could have affected results. Efforts were undertaken to minimise any double-counting - such as monitoring groups within a survey - in some cases it may have occurred.

The dominant species of macaw in the reserve was the red-bellied macaw (Orthopsittaca manilata). Surveys indicated that the population remained consistent over the duration of the project. Findings from earlier this year indicate that the recent extreme floods and droughts do not seem to cause major fluctuations in the macaw population, staying reasonably stable over the last six years (Bodmer et al., 2015).

During the final four weeks of the project, which encompassed the entirety of my stay, a dramatic increase in the number of wading birds was observed. Populations rose from approximately three-hundred birds to an excess of sixteen thousand, with the majority of birds being Neotropical Cormorants (*Phalacrocorax brasilianus*) and Great Egrets (*Adrea alba*).These were record highs for the region and indicate that the fish populations for the region are healthy and stable. Observations of terrestrial animals were down significantly on previous years' sightings; a number of the transects conducted did not have any sightings. Camera trap surveys were also being conducted on-site by dissertation students, which also recorded fewer animal sightings.

Wading birds are an indicator species for fish productivity in the region, as their populations are closely correlated with the fish populations. The high numbers observed indicated that there was good productivity that year. As there are migratory birds, they come to the reserve gradually, explaining the gradual increase in population numbers over the period of my stay. The fish are an important food resource for the local people, especially with the considerable drop in terrestrial animal populations, which would have usually been the primary meat source during the wet season.

In recent years, the region has been subjected to record-breaking floods and droughts. The falling number of terrestrial animals recorded may be correlated to the extremely high water levels this year. In previous years, the region usually has up to 5% of the land remaining dry during the flood season, though the year it was estimated that less than 1% of the forest remained non-flooded. This reduction in land would have concentrated all of the animals in one area, which makes them more vulnerable to competition and predation. The Cocama, the people who are indigenous to the reserve, will be impacted by this drop in numbers, as they rely on hunting during the flooded season. A reduction in numbers will cause the sustainable harvest limits to be altered, putting strains on the Cocama's livelihoods.

References

Bodmer, R., Fang, T., Puertas, P., Antunez, M., Chota, K., Bodmer, W. (2015). Impacts of Climate Change on Wildlife Conservation in the Samiria River Basin of the Pacaya-Samiria National Reserve, Peru.