An Operation Wallacea Expedition to Honduras

The opportunity to go to Honduras with Operation Wallacea this last summer was one I grabbed with both hands. I'm not a very well-travelled person and I was also looking to do something 'different' and luckily this came along. A project where I could even develop my practical skills in my degree programme whilst having fun in the tropics and doing conservation work that is not only maintaining much of the biodiversity of the area but is also helping to better the lives of the local community.

After an academic year of fund-raising, thanks in part to funds like the Rennie Bequest, and sorting out things like buying the correct wetsuit and getting all the necessary vaccinations, I headed out to Honduras, via Miami, on the 20th June. After arriving at San Pedro Sula International Airport it was a totally novel experience from the airport doors: a traffic system that seemed devoid of logic, abandoned trains, a very obvious gun culture and of course the massive variety in living conditions. Despite this our hotel was incredibly western as was the presence of every fast food chain under the sun; there was even a Hollywood style 'Coca-Cola' sign in the hills above the city.

San Pedro Sula is described by many as the most dangerous city in Central America, a claim which statistics into murder, theft, HIV and gun ownership certainly seemed to substantiate, but it seemed fine; if a little racist - 'Honduras for Hondurans' was quite a common shout at the sight of our predominantly white group. The return of the ex-president, who two years ago went into exile after a coup, was also an extra bit of 'cultural experience' that I managed to get whilst I was there. I must admit I was glad to be with Operation Wallacea on my first visit to Latin America!

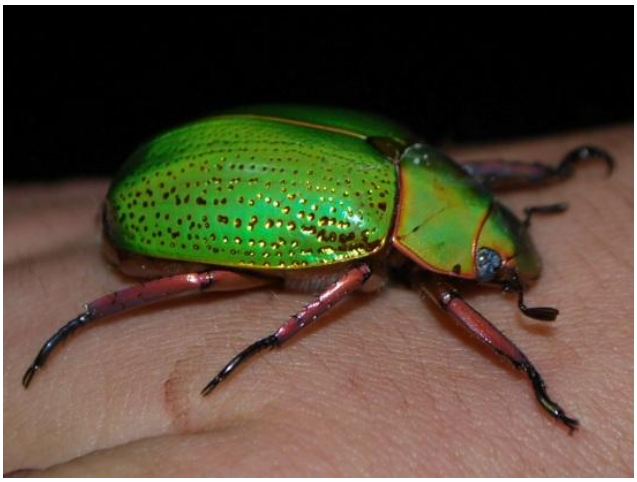
Early the next day we headed up into the cloud forest of the Cusuco National Park, at first by bus but then by jeep to actually get up into the forest. We entered from the south east side of the park, the dry side, which had very different vegetation and weather to what I was naïvely expecting from a tropical forest. However the animals we saw from day one were amazing and gave a tropical feeling, even if the pine trees and dry heat didn't!

I spent both of my jungle weeks largely at base camp; firstly for the forest ecology course and then during my conservation genetics week due to the necessity of the generator. Our base camp had been there since the late nineties and had been gradually improved since then to the point I was pleasantly surprised at the level of facilities – the 'long drop' was an experience to be saved for the satellite camps.

For the forest ecology week we had a variety of lectures on the different aspects of the forest ecosystem, the problems it faced and the potentially lucrative future of this national park. It was also at this point when I realised how loose a term 'national park' is in many countries compared to the UK and especially the USA. In practice the Cusuco National Park is a 'paper park' where it is nominally protected but not effectively managed or policed. Despite an increased governmental interest in the national park, due to resource sustainability and the value of the forest in carbon credits, the park still only has 4 full time rangers to cover an area of 235km^2. Two weeks before the Operation Wallacea projects were resumed this summer locals deforested a huge area right into the core zone of the park and the army actually had to be called in to police it. Many of the local communities are in favour of protecting their bit of forest (as long as they receive proper help in surviving without impacting it hugely) but others are less keen.

As well as lectures we did a series of different practical activities used to train us up so that we could be useful to the researchers whilst we were there. This meant we had long days, getting up before sunrise to do mist netting of birds and staying up until past midnight sometimes to mist net bats. During the day we would conduct vegetation and insect surveys (especially dung beetles and orchid bees) and then prepare for our

trapping of small mammals, herpetofauna walks and insect light trapping in the evenings. We were certainly kept busy. The light trap gave us some phenomenal insects include the jewelled scarab beetles and the 'stain glass window butterfly'. The jewelled scarab beetles actually glow under UV light and come in a range of colours from gold to pink with the most common being the green – these insects have suffered a lot in the past as their shells can be sold for $500 for jewellery. The amazing thing with the light trap was that we were seeing potentially hundreds of new species every night because the insects of Central America have never been fully described. This was fair enough but we even discovered a new species of small water mammal while we were there in the small mammal traps we did every night. A new mammal species; absolutely incredible!



One of the key investigations going on was into the spread of the Chytrid fungus which has been decimating amphibian populations from North America, through Central America and now reported in Panama and possibly in the northern most areas of South America. This fungus causes hardening of the epidermis of frogs and toads (there has been no real detrimental effect noted in salamanders) which gives problems breathing, controlling internal moisture levels and moving. If the fungus infects tadpoles the transformation into frogs or toads is majorly disrupted and the likelihood of breeding becomes extremely low. Our groups were collecting swab samples of adult frogs and of tadpoles as well as taking rain water samples to prove theories behind the rapid transmission of the spores. This would be continued into my second week as the way to identify an infection was through a certain genetic marker which could be analyses through PCR amplification. There were also some students conducting their dissertations on this fungus including looking at how altitude affects the fungus and whether increasing temperatures stop the amphibians sunbathing as long as before as this was the way amphibians were observed to kill the fungus in the 1980s.

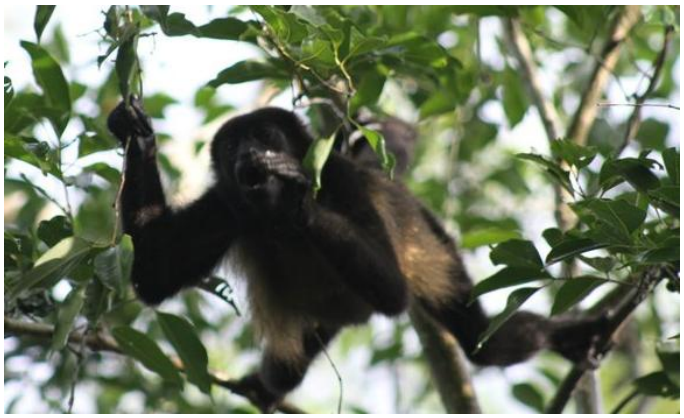
This week ended with our jungle training where we hiked through the different habitat types of the east side of the national park and stayed at the satellite camps (which had much more rudimentary facilities).

The second week was the DNA field course which I was really looking forward to. Again this had a series of lectures and practical work which was limited by the generator. During the course we did some population genetics evaluating the difference in PCR product length in a number of genetic regions to see the divergence between distant populations of the same species of plant. We also then got involved working on the Chytrid analysis. It was really interesting to see how such good results were generated despite working in a non-sterile wood cabin, in shorts, with geckos on the roof! Lots of this came through the use of 'ready to use' analysis material such as the Whatman FTA Cards and ready-made electrophoresis gels with mounts that contained UV lights so you could actually watch the DNA run and separate. Obviously these techniques, while easy to implement, are much more expensive than those used in the lab, usually raising the price by almost 30X, they were the only way to get any reliability with samples. It was actually quite refreshing not to have to do all the steps of a PCR preparation yourself!

With the dependence on the generator we luckily had long periods while PCR was happening, when the gels were running or when the generator was off to help with the research projects. I got quite involved with the Chytrid work. It also gave us time to get to know the locals and have a few games of football – I was quite proud that I could say; "Cross It", "Good game guys" and "Great goal" in Spanish by the end of that week!

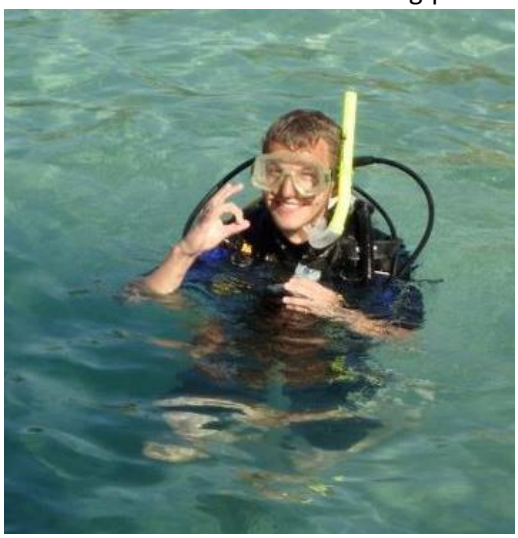
It was during this week that I also got to travel to the 'nearby' (a very relative term in the jungle) village of Buenos Aires to do some work in some of the other sites. This time looking at the best transects to do studies on orchid bees in future years. We also got the opportunity to go to a massive waterfall.

These two forest weeks ended surprisingly quickly but I was really looking forward to my two weeks down at the marine site of Cayos Cochinos. We left base camp very early and went down, again by jeep, out of the forest towards San Pedro Sula. We were fortunate enough to go to the monkey house at Manacal which has a phenomenal number of mantled howler monkeys in a very small 2km^2 area. The reason these monkeys have survived in such high numbers is that they are successful generalists and don't taste very good! Apparently there used to be spider monkeys on the same site but they are a tasty treat for the locals. Unsurprisingly there are no more spider monkeys there. However the howler monkeys survive with a recorded population of about 200 individuals!



After this brief stop we continued our long journey to the coast, now joined by the new recruits who had just arrived for marine weeks. Operation Wallacea works at two marine sites in Honduras; Utila, a populated island with resort and many development sourced issues, and the marine national park of Cayos Cochinos, a group of islands with a research centre based on Cayos Menor and development, hotel and dive resort on the larger island of Cayos Mayor. Those going to Cayos Menor had a much longer bus journey and had to stay in the village of Rio Esteban which had a vibrant and incredibly welcoming black community which fed us, put on a 'Punta' dance and gave us beds for the night. The next morning we completed our journey to the island by boat at dawn; a breathtakingly beautiful experience.

Cayos Menor was the archetype of a paradise island – to the extent that they were even filming the Spanish version of the reality TV show '*Survivor*' on the other side of the island (which helps to fund the reef foundation there). The weather was hot and low humidity for two weeks, sitting nicely at 35°C for most of the day. We were pleasantly surprised to find that the 'camp' here was better organised and looked much more permanent than up in the forest. We even got to sleep on beds which was a huge luxury compared to the tents and hammocks we had been using previously. There even seemed to be fewer mosquitoes. Paradise indeed!

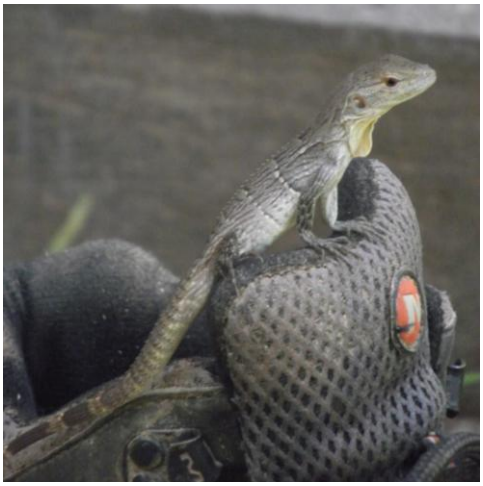


My first week was spent getting my PADI Open Water diving qualification. This involved four 'confined water' dives, five theory sessions and four 'open water' which all had to be passed satisfactorily before the final theory exam. I find the diving really fun but not the most relaxing of experiences! You were always checking your gages, checking everyone else, checking where you were swimming, keeping an eye on the dive leader and then, then you could look at things around you! I did gain my qualification however and see some pretty cool stuff! We saw spotted eagle rays, lots of parrotfish, angelfish, worms, spiny lobsters as well as the amazing reef around us. We even saw a nurse shark and a hawksbill turtle! The turtle was so graceful and didn't mind our presence but finished eating and then swam off.

It wasn't just the wildlife that was cool in the dives. I also got the opportunity to dive down to the wreck of a National Geographic plane which was just out of the main channel and current between Cayos Menor and Cayos Mayor. This plane was wrecked in the early 90s when it was taking pictures of the islands and the marine national park. However, the pilot was distracted by the sight of a male dive instructor from Cayos Mayor and his female student out 'sunbathing' naked in the channel between the two islands and flew lower to take pictures. Unfortunately he managed to stall the plane and crash it in the water. Luckily no one was injured and the plane was towed around out of the main current and sunk, conveniently to a depth of 60ft (the limit for a PADI Open Water diver). It was quite a freaky dive; you could even open the plane right side door and see the camera mountings. It was reassuring to note that the coral had rapidly taken over the plane and made it a new habitat.

My second marine week was spent doing the Caribbean reef ecology course where we were doing two morning dives a day then would have lectures so that we could recognise what we saw and do accurate and informative transect counts later in the week. During this course we had to learn the genus names of 12 algae,

22 coral species, over 40 invertebrate common names and 35 fish common names. This was tested at the end of the week with an 80% mark to pass. I achieved a solid 87% so am now qualified beyond the level required for Reef Check surveys in the Caribbean. This week was brilliant as it allowed us to dive knowing what was going on around us which made each dive so much more rewarding. It also meant we could collect data of use to the research being completed on the islands – much of this was into how the reef was changing due to fishing, introduction of invasive species and also whether the reef composition was changing and the long lasting effects on the reef after Hurricane Mitch in 1998.



However, we weren't diving the whole time so we got to explore the terrestrial sides of the island to a much greater extent. The Cayos Cochinos (translated as 'Hog Islands') are home to two endemic reptile species; the Hog Island Pink Boa Constrictors and the Teenasaurs, types of iguana. As well as the marine study there was also a lot of work with these and I got to help with the surveying twice within my two weeks. There were also two students doing their dissertations on these and it soon became apparent that while the teenasaurs were abundant and obvious they were much harder to catch than the boas which just sunbathed on horizontal branches (to which they were well camouflaged). The islands were also home to many other reptile species including green iguanas (which can get to be about 6ft nose to tail tip), many hunting, non-venomous snakes and even the basilisk 'Jesus Christ' lizard which, as a juvenile, runs on water – hence the name.

The two weeks here also rapidly came to end and we were faced with a long boat ride back to the buses. It was at this late point we realised the speed and unreliability of these boats when we arrived with sore bums and having stalled twice! We were also informed that these boats were actually confiscated drug boats!
We then had the afternoon and evening in San Pedro Sula again, this time with souvenir shopping and the hotel bar on our minds, before early flights home the next day.

Just three days after leaving Cayos Menor I was back home and reflecting on the time away. It was such an amazing experience and one which I really feel helped to consolidate parts of my degree as well as confirm my love for biology. The chance to go to the tropics and study the ecology there is something I would recommend to anyone and Operation Wallacea covers many places, interests and study topics and is well worth the money. Thank you once again for helping to fund this trip; it is not an experience I will ever forget.

Andrew Mason