



Operation  
Wallacea  
Conservation research through academic partnerships

Risk Assessment and Management  
In Peru 2011

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## 2011 - S1 Lima and Iquitos

Risk	Likelihood of occurrence during expedition	Severity of occurrence	Control Measures
Being knocked down by traffic or falling down a hole in the pavement	M	H	The general standard of driving and the condition of the roads and pavements is poor. Only cross roads at pedestrian crossings. All volunteers and staff to be instructed of the hazard as soon as they arrive and told to take special care.
Road traffic accident travelling to or from airport	L	H	Volunteers and staff if arriving before the start of the expedition or staying on after the expedition to be advised of the potential dangers and to be given contact details for a few reliable taxi drivers.
Mugging or Violence	L	H	All volunteers to be advised only to use approved travel agents who will meet them at the airport and organize the transfer straight to the hotels, minimizing any risk. All volunteers to be given contact details for expedition staff and hospital facilities prior to departure.
Being attacked whilst sleeping at the Casa Morey	L	H	The Casa Morey has a guard and the main door is locked after dark.
Contraction of dengue fever whilst in Iquitos	M	H	The Casa Morey is fumigated daily during periods of heightened risk. Students are urged to cover-up and use DEET-based mosquito repellent when visiting the city and are advised to stay away from indoor spaces on the outskirts of Iquitos where the risk of contracting the disease is at its highest.

## 2011 - S2 Research Boats

Risk	Likelihood of occurrence during expedition	Severity of occurrence	Control Measures
Volunteers not knowing what to do in the case of an emergency, or being unaware of potential risks	L	H	All volunteers and staff given a full health and safety briefing on arrival, warning them of all the potential risks, and what to do in the case of an emergency.
Fire on board the research boat	L	H	All volunteers will be briefed on the fire and evacuation procedures at the start of their stay on the vessel. All cabins are fitted with smoke detectors and all boats will have fire extinguishers in the kitchens, engine rooms, by the lower staircase, in the dining room and at the helm.
Problems with communication	L	M	The research vessels are equipped with SSB and UHF/VHF radios, satellite phone and email and have twice-daily contact with the office in Iquitos.
Engine failure and being stranded or overturned.	L	M	All the vessels to be in radio contact with the office in Iquitos at scheduled times and also with all the other boats throughout journeys, so that rescues can be organized. All vessels have auxiliary boats that will be used as lifeboats in the event of evacuation.
Chance of slipping or falling whilst on board or on the stairs	L	M	All staff and volunteers to be aware of slippery areas and to wear non-slip shoes when on the deck. All volunteers and staff to hold on to handrails when going up and down the stairs. No running on deck.

2011 - S3 In water activities

Risk	Likelihood of occurrence during expedition	Severity of occurrence	Control Measures
Swimming	H	H	NO SWIMMING IS ALLOWED. It is too dangerous with piranhas, electric eels, sting rays, candiru and strong currents.

2011 - G1      Trekking & survey work

Risk	Likelihood of occurrence during expedition	Severity of occurrence	Control Measures
A fall resulting in serious bleeding or a bone fracture	L	H	Ensuring that all staff and volunteers have footwear with good grip and ankle support. Ensuring that the trek leader has a mobile First Aid kit
Dehydration leading to death	L	VH	Ensuring that all staff and volunteers are informed that this is a significant risk and that they drink 3 / 4 litres of water per day. Ensuring that the Trek Leader ensures there are sufficient water supplies for the duration of the trek. Ensuring that the Trek Leader stops every 30 minutes for the group to rest and checks for signs of dehydration or exhaustion. Ensuring that all volunteers and staff are appropriately dressed and wearing a hat.
Electric eels and sting rays	M	H	This applies to stream crossings. No students are allowed to walk through streams and the guides will make bridges for any crossings.
Becoming poisoned from handling frogs	H	H	Students are only allowed to handle frogs caught on amphibian surveys under the supervision of a trained herpetologist. Students will not be allowed to handle any poisonous or unidentified frogs. These will be handled by staff wearing latex gloves. Students are advised to wash hands thoroughly upon return to the boats.
Bites and stings	L	H	All volunteers are told not to take samples from plants or trees. All volunteers are told never to taste plants and are instructed in which species can cause allergic reactions when touched. Volunteers instructed on checking around them before sitting or resting anywhere.

			Further details given in 2011 – G2.
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**2011 - G2      Interactions with wildlife**

<b>Risk</b>	<b>Likelihood of occurrence during expedition</b>	<b>Severity of occurrence</b>	<b>Control Measures</b>
Snake bite	L	H	Ensure that all volunteers and staff in the forest wear rubber boots, long baggy trousers and long sleeved shirts. Ensure no volunteer or staff member approaches any snake unless they are an approved snake handler. Note none of the projects involve capturing snakes. All participants should examine any area where they sit down carefully before sitting. Ensure that all night time trekking is confined to areas very close to the main boat. Note the likelihood of being bitten by a snake is exceedingly low and our partners in AmazonEco who have been working for 25 years in the area with hundreds of students have never had anyone bitten. If bitten the patient should be immobilised and spread of the toxin slowed by bandaging. An extractor should be used to extract much of the venom and then a pressure bandage applied. The guides who lead each of the terrestrial based teams are trained in these procedures. The main boat should be informed immediately and they will radio to Iquitos for an ambulance to meet the evacuating speedboats at Nauta. The hospital in Iquitos has viper and coral snake anti-venom.
Isulu ants, scorpions and other dangerous insects	L	H	All participants should be careful not to place hands on any trees prior to checking for dangerous insects. All participants should examine any area where they sit down carefully before sitting.
Caiman bites	L	H	Participants should not handle live caimans until they have been fully secured by a Peruvian field assistant, and must be directly supervised by qualified staff. All participants should use torches with a red filter during caiman surveys. Red eye flashes

			should be turned off on cameras. Leather gloves should be worn by the person handling the spot light.
Electric eels and Sting Rays	M	H	This is potentially a problem when line fishing. Students will always be accompanied by a guide so if an eel is caught then the guide or biologist will cut the line. Guides empty fish from the gill nets and no electric eels are landed.
Piranha bites	M	H	Participants should only handle piranha fish when they have been secured by a Peruvian field assistant. Note piranhas can live for a long while out of water and so can be still dangerous even if they appear dead. All volunteers and staff must not swim in the river.
Candiru	L	H	These parasitic freshwater catfish (also known as toothpick fish) found in the Amazon have been recorded to swim inside urethras of people swimming. No swimming is allowed

2011 - G3      Boat travel to/from Iquitos and Research Sites

Risk	Likelihood of occurrence during expedition	Severity of occurrence	Control Measures
Boat overturning or staff/volunteer falling overboard	L	M	All boats being used will be fitted with short wave radio so that contact can be maintained throughout the journey with other boats and the office in Iquitos. In addition a satellite phone will be carried for emergency contact. The nominated staff member in charge to ensure that the boat is not overloaded.
Boats becoming lost in poor visibility weather conditions or at night.	L	M	All boat journeys to be led by Operation Wallacea or partner staff with a GPS and chart of the area and knowledge of how to navigate.
Boat being hit by other vessel at night	L	M	All boats used to carry navigation lights.
Attack by pirates	VL	H	There was an incident of a tourist boat being attacked and robbed by pirates on the Amazon near to Iquitos in 2009. The same boat was attacked twice and it turned out to be a disgruntled ex-employee who was targeting that one boat. However, the AmazonEco ships that are being used for this expedition always travel in convoy with radio contact to Iquitos. No guns are carried on board and there are night watches on the one occasion they need to travel overnight. On site the ships are inside the Reserve and the mouth of the river going into the reserve is guarded.

**2011 - G4 Work on auxiliary boats and canoes**

<b>Risk</b>	<b>Likelihood of occurrence during expedition</b>	<b>Severity of occurrence</b>	<b>Control Measures</b>
Boat overturning or staff/volunteer falling overboard	L	M	All volunteers and staff to be accompanied by a guide. All volunteers should wear life vests when travelling in auxiliary boats. Life vests should be put on before embarking in the boats and removed when fully disembarked. The number of volunteers must never exceed the maximum capacity. All participants must enter and exit the boats one at a time.
Sunburns	H	M	All participants should wear sun block and hats if they have sensitive skin.
Dehydration	H	M	All participants should bring 1-2 litres of drinking water on the aquatic transects.
Injury from engine	L	M	Participants should not enter the engine area of the boat.
Cold	H	L	All participants should wear (light) warm clothes during early morning transects and caiman surveys. All participants should bring rain gear with them on the aquatic transects.

## 2011 - G5 Medical issues

Risk	Likelihood of occurrence during expedition	Severity of occurrence	Control Measures
Malaria or Dengue	M	H	Ensure that all staff and volunteers are told in advance to bring adequate supplies of malaria prophylactic medication and that they start taking them at least one week before joining the expedition. All staff and volunteers to be informed that anti malaria medication is only partially effective against malaria and that the first line of defence should be to remain inside cabins or dining area between 05:00 - 07:00 and 17:30 - 19:00. All volunteers and staff told to wear deet-based insect repellent particularly in the later afternoon and early morning.. All beds to have mosquito nets and mosquito guards on the windows and ample supplies of insecticide available for spraying the room.
Stomach upsets	M	M	Ensure all staff and volunteers drink or wash their teeth in filtered water. Ensure that personal hygiene issues are emphasised in briefings to avoid spread of infectious diseases amongst a group of people living in close proximity. The Boat Managers to regularly check the standard of hygiene in the areas used for cooking foods and reporting back to cooks on improvements required. No food to be reheated or consumed more than 6 hours after cooking. All food to be covered in the kitchen and when served.
Heat stroke and sunburn	M	H	Ensure that all volunteers and staff are aware of the need to drink 3 litres of water a day. The way to monitor whether adequate fluid is being taken is to monitor the volume and colour of urine. All volunteers and staff to be told of significant risk of sunburn particularly when travelling on boats and to have become adequately prepared with high factor sun block (30 - 60) for the duration of their stay. All volunteers to be made aware of risk of heat stroke through long exposure in the sun before acclimatization.
Wounds	M	H	Ensure all cuts, however insignificant, are cleaned with clean water and betadine/antiseptic is

			applied. All volunteers and staff to be made aware that there is a greatly increased risk of secondary infections. Assess daily and if the wound appears to becoming infected then report it to the medical staff. Ensure that volunteers and staff are informed that scratched mosquito bites are a common source of secondary infection. Ensure staff and volunteers are informed of the dangers of walking around bare footed.
Lack of medical advice	L	M	Detailed medical questionnaires to be completed by all staff and volunteers before joining the expeditions. These questionnaires to be reviewed by an Expedition Medic prior to the start of the expeditions and any staff or volunteers, that appear to have medical conditions that might affect their ability to participate in the expeditions, are informed so that additional medical advice can be obtained. A medical staff member to be present on one of the boats and volunteers will have easy access to medical support. All volunteers and staff going to a site to be interviewed by the medic and a medical record form completed. All treatment by medics at any site to be recorded on this medical form. Evacuation plans for different levels of emergency (High, Medium, Low) in position and a sea plane can be mobilised in the event of a high priority evacuation.
Leishmaniasis	VL	H	Although leishmaniasis has been reported from other parts of Peru it has not been recorded from the Samiria river. Leishmaniasis is caused by protozoan parasites transmitted in sand fly bites. Ensuring that you are covered up whenever on land based transects will reduce the risk of sand fly bites.
Bilharzia	L	H	Bilharzia is a parasitic disease caused by several species of fluke of the genus Schistosoma and Worldwide is the second most socio-economically devastating parasitic disease after malaria. It can be caught by swimming or wading in slow flowing water with large populations of freshwater snails that act as intermediate hosts. No swimming or wading is allowed on the Opwall expeditions.
No medical advice available	L	H	There is a qualified nurse on each group of boats. Patients can be evacuated by speedboat to the Clinic in Nauta (2 - 5 hours) and for serious issues can be taken from there by ambulance to a high quality hospital in Iquitos. The nurses have radio and satellite phone communications on the boats to ask for additional medical advice.
No feedback system to reduce accidents and	L	M	The medic at each of the sites to record the number of accidents, near misses and illnesses at their camp into 7 categories of seriousness and to hold bi-monthly meetings to discuss how these incidents could be further reduced.

illnesses			
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