

And one more thing....

- Our groups consist of different nationalities. If your nationality is in the majority please try to be polite and don't speak your own language all the time. The most common language, which everybody understands is English.

#### V. CONTACT FOR PEOPLE WHO STAY AT HOME

If something happens back home, you can always be reached, because every camp-side has a radio, or is close to one, which is in contact with the Pantiacolla office in Cusco. Give your family our telephone-number (+ 51 84 238323) or our e-mailaddress: [pantiac@terra.com.pe](mailto:pantiac@terra.com.pe).



*BEHAVE SAFELY IN THE  
RAINFOREST*

*or,*

*things you'd like to know  
about Manu before you leave*

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#### IV. RULES AND RECOMMENDATIONS FOR GROUPS

The following are rules and recommendations for people who join our group tours, made by the Pantiacolla field personnel. They are both for your safety, to increase the chance of seeing animals and to have a good group dynamics.

- The guide is the leader of the group; both as far as the tourist are concerned as the rest of the Pantiacolla personnel.
- Please try to be punctual at all times, to avoid long waiting times for others.
- Tourists are asked to express wishes, complaints or any other worry, immediately to the guide. The guide will attend the issue immediately.
- Because of climatic, road, river or any other circumstances, changes in the program may be necessary. The guide will explain the circumstances immediately and propose alternatives for the program.
- During the hikes in nature, the tourists should walk behind the guide. In this way the guide can indicate all the tourists the interesting sightings.
- During the hikes in nature, the tourists should follow the instructions of the guides, such as "stop", "hurry" and "silence" in case of encounters with animals.
- Tourists and guide should speak in a low voice, and only about necessary issues, to increase the probability of seeing animals.
- Every night after dinner, the guide and tourists will review flora and fauna seen during the day, with the help of the available guide books
- Every night the guide will explain next day's activities. During each meal the guide will repeat the explanation of the activities up to the next meal.
- When a tourist wishes to hike on her/his own, they have to understand that Pantiacolla cannot be held responsible for anything happening to the tourists during that time. The tourist is advised to always walk with a flashlight and a compass, and explain to the guide which trail she/he will follow and for about how long. It is prohibited for tourists to walk alone in Manu's Reserved Zone.
- As a consensus of opinion of all Pantiacolla staff it is agreed that they should not be invited to, nor accept, to alcoholic drinks during stops in Boca Manu while on duty.
- The tourists are asked to be careful with the Pantiacolla equipment and report any material fault to the guide immediately.

## RETURNING BY PLANE

If you return by plane, you have to remember that you cannot take more than 10 kg of luggage per person; this does not include your daypack and camera. The planes are light aircrafts, either a Beechcraft or Twinotter, with a maximum of 9 or 15 persons. Because the flight is going up the Andes Mountains, it is possible you encounter a lot of air-turbulence. This air-turbulence does not make your flight less safe, only much bumpier.

The planes are not ours, and for the airline companies there are many reasons to delay the flights. Bad weather is a good reason of course, but they have more things to calculate than only the weather. They also have to get a full plane, which sometimes means they fly to the gold-miners area as well. This makes that often one has to wait longer for the flight than expected. Sorry!

## TIPPING PERSONNEL?

Tipping personnel can become a hot issue if there are both Dutch and United States citizens in the same group. The first think it is not necessary to tip, and the second think it is extremely rude not to. I think –by the way, I am Dutch- one should do whatever one feels good to do. One should not feel worried if one does not tip: it is absolutely not like the situation with the porters on the Inka Trail. Also, one should not feel worried when one does tip: our personnel certainly appreciate it. By the way, showing your appreciation, if you wish to do so, in any other way is fine as well, e.g. shaking hands and saying thank you, taking photographs of them and sending them afterwards (you can use the address of the office), or exchanging hats or t-shirts, or whatever else you can think of. But please, do not fight about it, do not judge others for what they do, and do not feel bad with what you decide to do!

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## I. INTRODUCTION

**Please, take your time to read this before you part for Manu.**

We at Pantiacolla are pleased with the trust you have placed in us for your expedition into the Manu Biosphere Reserve. At this moment you must be looking forward to the trip ahead of you, but also you may have some feelings of anxiety about its possible dangers and discomforts. In reality, overall, Manu is not a dangerous place, especially not if compared to the number of dangers that may occur in big cities. But for sure, there are some problems and dangers you should know about.

To make sure you travel well prepared and without redundant feelings of doubt, we have made you a list of all probable problems and dangers we have ever heard of, plus a rating of how dangerous it could be, to how likely it is to encounter that particular problem or danger. Any other preoccupations that are in your mind from books read or movies seen that are not mentioned below: forget about them: these may have been invented in someone's imagination, or may be restricted to other rainforests.

For the ones among you who do not like reading a lot, all the different items have a summary to start with. Reading the cursive and darkened parts of the pamphlet only, actually provides you with enough information to get you through Manu without getting you into difficulties.

### **Danger rating:**

- 1 means not dangerous at all to your physical health**
- 2 means it may inflict wounds, pain or fever, but is not lethal**
- 3 means a possibly lethal danger**

### **Occurrence rating:**

- 1 means it hardly ever happens, do not bother to think about it**
- 2 means it happens, but only some times, or some times per year**
- 3 means it occurs frequently, and you can possibly encounter this problem or danger**

## III. NON-PHYSICAL PROBLEMS & SOME TIPS

### ***YOU HAVE A PROBLEM IF YOU CAME FOR THE ANIMALS***

Because of the lack of minerals in the soil, and therefore the plants that protect themselves from being eaten, there is not much vegetable matter to be eaten. As a consequence there are not many herbivorous animals, and therefore also not many carnivorous animals, that should have the herbivores as their food source. In general there are not many animals in the tropical rainforest. If you would compare this habitat to the savannas in Africa, you would find 5 to 7 times more animals (in reality biomass) on the savannas than in the forest, and in the forest you would find about 1 million times more vegetable matter than on the African savannas. So there are fewer animals in the rainforest, and the biggest chance is that they are hidden behind vegetation. This is important to understand before starting your expedition, to avoid disappointment once there.

Everywhere you look you will see birds and insects of course. You can see troops of monkeys on a regular basis; say 3-5 times per day once in the Reserved Zone. In the lakes, especially Lake Salvador, you have a very good chance to find the giant otters, and you nearly always see caiman. However all other animals, the big (ger) mammals, are much more difficult to spot. On every trip you will encounter one of them, but it is impossible to tell beforehand which ones, and at what place and moment.

Now, because of what written here, you may think it is not worthwhile to try to find the animals, but that is not the case: maybe there are not very many animals, and it is also hard to see them, but they are definitely there. Of course your guide will find most of the animals, especially when walking in the forest, because the guide knows the sounds of the animals. Nevertheless, when on the boat, it is very clear one spots more animals when there are more alert eyes watching for them. In other words, it is worthwhile to try not to fall asleep when on the boat.....

### **HOW TO USE THE 'TOILETS'**

At all overnights stops there will be flush toilets available. During road and river travel toilets are not always present, and you may have to look for a good place for this. Make sure you always cover up whatever you are leaving behind, especially toilet paper. Everything will completely decay within. Please do not use the exposed parts of a beach as a toilet, as your cover up efforts may be undone by the river and spoil the view for others.

## **SNAKES**

Danger: 3/Occurrence: 2

From these snakes only a small percentage have a lethal poison. The bush-master and the fer-de-lance, both terrestrial and nocturnal snakes, do have a lethal poison. They curl-up during the day in between the buttresses of big trees, under the dead leaves. To not be disturbed when asleep, they try not to be visible through having the same colours as the dead leaves they use as their sleeping place. They are a bit light brown, with dark brown, with a light stripe and a dark stripe: any snake that looks like dead leaves, stay away!

Another snake with a lethal poison is the beautifully coloured coral snake. It has white, black, red, yellow and orange bands around its body. It is a terrestrial snake that, even though poisonous, is hardly feared by the indigenous people of Manu: it is a very timid snake, and one really has to threaten the snake with death, to make it bite. Otherwise, the children from the Indians use them as playmates.

The fourth snake with a lethal poison is the 'loro machako': a tree snake that can be easily confused with the emerald tree boa. Boas of course have no poison since they strangle, but the exact imitation of it, the loro machako, does have a lethal poison. Even the local people may confuse these snakes. So, whatever green snake you encounter, take that it may be the poisonous one!

Till now a snake bite has never happened on our tours, however, the snakes are there, and therefore we have thought about how to react in case of a bite of a poisonous snake. We carry no anti-venom on the tours because anti-venom has to be stored at refrigerator temperature, difficult to find in the tropical rainforest. Also it is very specific, meaning that it is only effective if you use the right anti-venom for the right snake. And thirdly, it is frequent that people react with an allergic shock to the anti-venom, meaning that if nobody acts with immediate adequacy, the person may die of the allergic shock, due to the anti-venom, instead of the snake poison! What we would do instead is we immobilize the victim as much as possible, then try to get him or her to a hospital before the venom will start to take effect. In the case of the most poisonous snake in Manu, the bush-master, this takes about 6 hours. And 6 hours should be enough to get you back to Cusco: first the guide will call the Pantiacolla office in Cusco by radio -there is always a radio within 30 minutes of the campsites- and they will send in either a helicopter or a plane as soon as possible. However, since the Cusco airport has no radar, not even helicopters can fly in and out of Cusco at night or during extremely bad weather circumstances. If that would happen, we would get the victim to the nearest local hospital as soon as possible.

## II. PHYSICAL PROBLEMS & DISCOMFORTS AND DANGERS

### **1. Problems & Discomforts**

#### **General**

#### **GENERAL DISCOMFORTS**

**Experiencing an undisturbed rainforest means you cannot expect the comforts you have at home.**

Manu is an incredible tropical rainforest, a real one, where human beings have had no or, in some parts, marginal influence. We from Pantiacolla find it important to also minimise *your* impact as much as possible; therefore please realise we do not wish to provide you with extensive facilities: this is not a luxury tour you are about to start. On the contrary, you will encounter basic washing and toilet facilities, plus physical discomforts, such as the heat, humidity, biting insects, which may have you doubt your decision to go on this expedition. Nevertheless, your reward is exclusive: it is to be part of a rainforest as it has been since the beginning of its time!

#### **GETTING OUT OF YOUR HOTEL AND INTO OUR BUS**

***Do not walk on the streets early in the morning by yourself.***

Cusco, your starting point for the trip, looks neat, but actually has a high crime rate; especially in the high season for tourism, thieves from all over the country come to do their 'work' in Cusco. Therefore, you should not walk by yourself with all your belongings on your back, through Cusco's streets early in the morning. Wait inside your hotel till somebody identifying him/herself as being from Pantiacolla, picks you up. This person takes you to the office or to the bus by taxi.

#### **BEING THIRSTY**

**Only bring drinking water for the first day.**

For the first day you should bring drinking water yourself: we bring big bottles of mineral water, but it is really hard to re-fill your bottle from these in a moving bus. You can refill your bottle as off arriving at the eco-lodge in the cloud forest.

## **BE STRAIGHTFORWARD**

### **Always let the guide know what is on your mind.**

Our guides are there to inform you about the rainforest and assist you in any other way they can as well. However, they are not telepathic!!! Please always let them know what is on your mind, for them to help you the best they can.

**MOSQUITOES** Danger: 1/Occurrence: 3

### **Biting insects are always there. Cover yourself as much as possible with clothes, and for the rest use an insect repellent. In case your tour includes camping, keep your tent well closed, to enable an undisturbed sleep at night.**

Biting insects are active 24 hours per day. The mosquitoes like dark and humid places; therefore you do not find them on the river during the day, only at night. However, you find them both during the day and at night in the dark humid forest itself. Moreover, do not think you are safe during the day on the river: that is the time and habitat for the so called 'no see-ums', tiny sand-flies and black-flies. These may be following you in clouds on the beaches. Their bites are not felt at the moment they bite you and take your blood, but afterwards the itch is as bad as the itch of a mosquito bite.

We advise you to cover as much as you can of your body with clothes: use a long-sleeved shirt over a t-shirt and long trousers. Your hands, face and neck are the only parts remaining uncovered. Make sure you use an effective insect repellent to protect those parts. An effective insect repellent contains at least 35% of the chemical di-ethyl methyl toluamide, which is called 'deet' for short. This deet 'confuses' the insects, as soon as they get near the smell, they 'forget' what they came to do and fly off without having done their job. The disadvantage of this deet is that it is not very healthy for human beings. It permeates through your skin into your bloodstream and collects in your liver. That is why we advise to use as little as possible, and it should not be used by pregnant women. The other disadvantage deet has, is that it melts plastics and rubbers: if spread on the inside of your hands, and you touch anything which is plastic or rubber, the object sticks to your fingers. Therefore, best one does not use it on the inside of the hands. Put one or two oily drops on the back of your hands, rub them together, and then pass them over your face (excluding your eyes) and neck. Also, if you have a plastic watch, or plastic rims on your glasses, take them off, or avoid as much as possible contact with the insect repellent. It usually says in the instructions that come on the bottle of the repellent that the effectiveness of the repellent lasts up to eight or ten hours. Well, you can forget about that: because of the heat and humidity, you are sweating all the time. This makes

## **2. Dangers**

Real dangers are not abundant in the Manu rainforest. The following is a list of possibilities:

### **FALLING TREES**

Danger: 3/Occurrence: 2

**Trees and branches can easily fall. Be aware of sounds of snapping wood.** Trees in the rainforest have very shallow roots, making them apt to fall over. However, on our trips we sleep at lodges with no trees, or at our own campsites that are checked all the time by our guides. Actually, it is not very difficult to recognise a potentially dangerous tree: a dead tree with lots of vines on it can easily fall over during a rain-shower, a tree with an inclination could fall over any time, and a branch with a termite nest will certainly break off at a certain time. So any time that one of our guides spots a potentially dangerous tree we take safety measurements. We have the permit to take down dangerous trees at campsites, but very often this tree will be connected to lots of other trees through the vines, and taking them all down would be too much. The other thing we can do, and have done in the past, is to change the position of the campsite, to where no dangerous trees are.

**DANGEROUS ANIMALS** Danger: 3/Occurrence: 1

**None of the big cats in Manu specialize on humans for food.** Big cats could easily eat you, if they would set their minds to it. However, this is not how their minds seem to work. Humans probably look enormous to any animal, since one normally should have a body behind the front. They may not be able to understand we actually have our whole body visibly under us. Till now it seems cats only attack people if they have no other choice left; if they cannot run away because they are stuck somewhere or because you seem to attack their young. The chance to meet a jaguar on a Manu trip is about 10%, when you are on the river. The jaguar may be lying on the beach or on the shore, on a big log. The chance to meet a jaguar on the trail you are walking on is less than 1%. In Manu it is unlikely to come across a jaguar in one of the situations in which they have no choice but to attack. This is because there is lots of space in Manu, all jaguars, including the females with young, can easily avoid ever encountering people on the trails.

**In conclusion, it seems poisonous snakes are one of the few real dangers in Manu....** Although one does not see snakes on a regular basis: usually one encounters at the most one snake per 9-day trip. This means that the guide, who goes first, sees the snake, and the person just behind the guide sees the tail disappear in the forest thicket.

## **BOTFLY**

Danger: 1/Occurrence: 2

**The botfly has an interesting life cycle, but is not really harmful.** The botfly is a big and noisy fly. Its larvae grow in the skins of mammals or birds, and since we are mammals, we could become their prey. Because of the fly's size and loudness, the female can never get near its target; you would always see or hear her. So, she uses a trick. She catches a little bloodsucking fly, and glues her eggs on the outside of this fly. At a certain moment, this little fly may land on your skin to drink blood. The heat of your skin makes the eggs of the botfly fall off the fly on your skin. They develop themselves quickly into larvae that dig themselves in immediately. Usually it is only one, but sometimes they are up to 5 different larvae.

In the beginning of their life in your skin, you do not feel their presence, or maybe feel a vague itch. But probably you have some more itches by this time, so you may not give it any special attention. However, after about 8 or 9 days, the itch becomes a pain, that does ask your attention: it is a sharp pain, but only for about 10 to 15 minutes, 3 to 4 times per day. This is very characteristic for the botfly larvae, the pain is not constant. The reason for this is the following, the larva grows from eating your blood, and therefore it is important to the larva that your blood does not infect. To this purpose, the larva is filled with antibiotics that prevent any infection. But this means the skin closes fast as well, and of course the larva also needs oxygen. The pain you feel is the larva biting through your skin, with its bigger growing jaws, to make an opening to breathe.

As soon as you do notice what is happening in your skin, this may feel ugly, but in reality this is a completely innocent phenomenon: because of the antibiotics you do not get an infection, the larvae do not carry any diseases, no viruses or bacteria that could do you harm, and the larva cannot crawl under your skin from one place to the other. The only thing you have to do, is get it out. For this, you have to kill the larva first, because of the bristles at the end of its body that actively keep it in place, as long as it is alive. To kill it effectively, you can use a drop of at least 70% deet insect repellent on its head. Otherwise, you could cut off its oxygen supply, through well-applied masking tape on top of the little hole. Then it takes about 7 to 8 hours for the little larva to suffocate. Usually the larva comes off with the tape, since it had stuck out its head to try to breathe, otherwise you can squeeze it out, or just leave it there; since it is filled with antibiotics, it just disintegrates, without causing infections.

the repellent wear off in about 30 minutes. So, only use a little bit at a time, but repeat it twice per hour.

**In case your tour includes camping: to keep the insects out of your tent it is important to keep your tent well-closed at all times even during the day.** Well-closed means that the place where the zippers of the tent come together and form a little hole, must also be sealed. This can be done with toilet-paper, masking tape or anything else you can think of, such as chewing gum? Mosquitoes are very tedious and will creep over your tent for hours looking for this one little opening to get inside.

To get you into the tent without allowing in too many insects as well, the following usually works well. First, wipe away the insects that are sitting on the outside door of your tent. Then open the zippers really fast, get in really fast, and close the zippers again. Don't forget to put something in the little hole where the zippers meet! Finally, kill any mosquitoes that did manage to get in anyway. This whole process may take you 10 to 20 minutes, depending how fast 'really fast' is.

Every time you get out of your tent to use the toilet, you will have to repeat this procedure. Therefore, it might be better to not drink too much in the evenings!

## **MALARIA**

Danger: 3/Occurrence: 1

***It is very unlikely to contract Malaria in Manu.***

Malaria is caused by a parasite, *Plasmodia*, that is transmitted from one human being to another by *Anopheles*-mosquitoes. There is no occurrence of the *Plasmodia*-parasite in the Reserved Zone of the Manu Biosphere Reserve, and therefore the chance to get this disease on the Pantiacolla tours is very small. The cases of Malaria in the Cultural Zone of Manu have almost all been traced back to the adjacent gold-miners zone of the Colorado River. Of course there is always the very small chance that someone who has travelled to the gold-miners zone, has been infected with Malaria and afterwards travels in Manu's Cultural Zone, where you travel through as well. A not-yet infected *Anopheles*-mosquito may get the gold-miner first and afterwards you..... This is possible, but has only happened once in Manu's 20 years of tourism till now. Pantiacolla's guides actually prefer tourists not to use a prophylactic, since many fall ill, only because of the side effects of the prophylactic medication. I would say let your decision depend on your own judgement: it would be a waste of your time and money to go on a trip without the prophylactic, if you then feel paranoid about every mosquito you meet! Another consideration for your decision may be the fact that, since the

gold-miners use no prophylactic at all, no resistance exists against any of the existing medication. In case you would be the second tourist to get Malaria, it would not be complicated to cure you.

#### **YELLOW FEVER**

Danger: 3/Occurrence: 1

**Yellow fever has not occurred in Manu for the past 12 years, even so vaccination is required.**

Yellow fever is caused by a virus, which is also transmitted by certain species of mosquito. As far as we know, yellow fever does not exist in Manu. Still, the authorities insist on a yellow fever vaccination for all our tourists, to make sure no one will bring this disease to us.

#### **LEISHMANIASIS**

Danger: 3/Occurrence: 1

**One needs to be in Manu for over 3 months to really have a chance to get infected.**

This is a disease that causes deep, chronic skin infections in its first phase. The infection is caused by a protozoa parasite and transmitted by a certain type of sand-fly, *Phlebotomus*. This disease does occur in Manu, however, it seems only people who stay for a long-term period have a chance to be infected.

#### **DIARRHOEA**

Danger: 2/Occurrence: 2

**Infections that result in diarrhoea are uncommon in the rainforest. You may get infected through your fellow-travellers.**

Since very few people live in Manu there are not many sources of infection that result in diarrhoea. Also water is present in abundance, and most of it is fast running, therefore, possible sources of infection are flushed away speedily.

If diarrhoea occurs on your trip into Manu, most likely you received it from one of your group members. They may have got infected on previous trips, where conditions were less hygienic (e.g. on the Inca Trail). Therefore, it is important to always wash your hands well before taking your meals, and to not exchange plates, cups and cutlery without having it washed first.

#### **INSECTS**

Danger: 1/Occurrence: 3

**Almost all insects carry poison in their bodies, avoid them.** The chemicals of the plants have the consequence that most of the vegetation is inedible for a normal digestion. This is the reason why relatively few animals can be found in the rainforest: there is nothing to eat! But for sure, the animals still present are eating something; they have found ways to go around this problem. This means they can either change the composition of the toxic, making it non-toxic, or they have ways to excrete the toxic, before digesting it. Almost all insects eat vegetable matter, at least in one of their life stages, usually as larvae. Their way to render the toxic innocent is by excreting it from their digestive system: they may collect it in hairs that were protecting them, in this way the hairs become toxic to anyone who may touch them! Basically, it means almost all insects are toxic, and certainly not edible to us. Another example of a toxic insect is the Izula ant; it is a big ant, of about 2 cm long, which has a big stinger at the end of its body. The stinger has a poison very similar in function to the poison of a cobra! It is not a whole lot since the Izula ant is only small compared to the cobra however; it is enough for people to feel a strong pain, sometimes experience a fever or faint. These Izulas usually walk on tree trunks, either standing or fallen tree trunks so again, before you touch anything, look at it first, also when you are about to climb over a log: before you put down your hand as a support, watch first for one of these Izulas walking across.

#### **FROGS**

Danger: 2/Occurrence: 2

**Frogs may be very beautiful, but also very poisonous.** Frogs eat insects, and most of the insects have toxins. For the frog to not poison itself, it excretes these poisons through its skin. Therefore, all frogs are a bit poisonous when touching them. Usually not enough to have an effect on humans, but some of them have an extremely high concentration of toxins on their skin. These are the famous poison arrow frogs: with flashing colours they announce their presence; with a satisfied security they should not be eaten. There are poison arrow frogs that have enough poison that one of these individuals could kill 1000 human beings! The poison does have to get into the bloodstream to have its effect: just picking up a poison arrow frog will not kill you, as long as you do not stick your fingers into your mouth.....

poncho, hat, sun screen, guide book etc.). In case you forgot something in your big backpack (or you have another reason to move), tell the guide, who will then let the boatman know to stop somewhere or to travel slower, for you to get to your backpack, without endangering the trip. It also means that, in case you would see an interesting animal on one side of the river, you are not allowed to all stand up at the same time and point to the same side of the river!

## **Forest**

### **PLANTS**

Danger: 1/Occurrence: 3

**Always walk in the forest with your eyes alert, and never touch anything before looking at it first.** The forest itself is a bit of a tricky place to be. The reason for this is that the forest floor is extremely poor in minerals. This means for the plants and trees of the forest, that whenever they lose a part of themselves by an animal eating at them, it will be very difficult to find the right minerals to replace that part. At times it may even be impossible. And at times the part or the quantity being eaten may be crucial to the plant's ability to function. So, at a certain point the plant or tree may die because of having been partly eaten. Therefore, plants and trees invest in prevention of being eaten. The oldest form of prevention can mostly be found in the oldest plants, the palms and standing ferns. This is a mechanical protection, with hairs or hooks or spikes. Because of this type of protection, it is important to never touch anything in the forest without looking at it first. This also means that if it is slippery, when about to fall down, you better let yourself fall and get muddy (you never are very clean in the forest anyway) instead of trying to grab hold of a tree trunk near the trail, that may be covered with 15cm-long spikes!

**Do not eat the plants of the forest.** Most of the modern plants and trees have a more modern type of protection: they make complicated chemicals that are toxic once ingested by animals. Examples of this are garlic; the garlic smell repels insects and marihuana that puts the mind of the animal in a state of confusion, also rubber. Rubber is the sap of the rubber tree (some other species use a similar mechanism). If, for example, a caterpillar eats from its leaves, the rubber comes out and the little jaws of the caterpillar stick together, making it impossible to continue eating. This type of protection is not a problem to human visitors of the rainforest, as long as they do not have to eat from the vegetation. On our tours this is not necessary, since we send in lots of food and a cook to prepare it for you!

## **Rivers & Lakes**

### **SWIMMING**

**It is not allowed to swim in the lakes or in the river Manu** since they are home to the giant otters and caiman, who can be extremely aggressive towards human beings. Also, there is a higher concentration of piranha and caiman in the lakes than in the river.

**Swimming in the river is refreshing**, especially the Alto Madre de Dios River which is clear and cool in the dry season. Possible problems:

### **CURRENT**

Danger: 2/Occurrence: 1

**The currents are very strong**, especially in the Alto Madre de Dios River. When you go swimming, ask your guide or boatman, if you speak the same language, where the spots with less current are.

### **PIRAÑAS**

Danger: 2/Occurrence: 1

**Pirañas in the Manu River have never attacked humans.** To become really aggressive as we know them from novels and movies, a piraña has to be very hungry. Food scarcity has to continue over an extended period to make sure whole schools of piranha will attack you at the same time. Only in a couple of occasions did piranhas take a bite of a human body part in Manu: in all cases this happened when people were swimming in a lake (not allowed!), that had an extremely low water level due to little rainfall for an extended period. In at least one occasion, we know the piranha was actually attacking the fungus on a toe, instead of the toe itself! Never has it occurred that people swimming in a river were bitten by a piranha.

The river also harbours lots of tiny fish, locally called 'sardinas'. These sardinas like to eat the minerals (salts) of your skin. They have no teeth, so their bites are not painful, however, people freak out since they think it is the beginning of a massive piranha attack!

### **CAIMAN**

Danger: 3/Occurrence: 1

**The black caiman can be a man-killer under certain circumstances.** From the three caiman species in Manu, the black caiman can get biggest, about 7 metres long! These massive caiman are also the most timid creatures though, because they are very tiny at time of hatching and therefore have lots of enemies. Most dominant among them are their own big

brothers: caiman are cannibalistic. The white and the smooth-fronted caiman are definitely not man-killers; the black caiman has been described as a man-killer in certain parts of the Amazon rainforest, however not for Manu. Maybe 'killing man' is a risky business that they would be forced into only when they run out of other prey and man has closed in on its habitat. Anyway, because of their size these creatures should be respected, being man-killers or not.

**GIANT OTTER** Danger: 3/Occurrence: 1

**Giant otters with offspring can be aggressive.** The giant otter is strange among otters because it is gregarious, it lives in groups. This otter is almost 2 metres long, and attacking in co-operation they even beat the biggest caiman. When there are young in the family, the adult animals can aggressively attack anyone who comes in their lake. Therefore, it is not allowed to swim in the lakes of Manu.

**STING RAY** Danger: 2/Occurrence: 1

**The sting ray has a poisonous stinger, and you have to be aware of its habits to avoid being stung.** The sting ray is one of the oldest creatures of the Amazon basin: they already existed there when it still formed part of the ocean. When the Andes Mountains rose, little by little these cartilage fish adapted themselves to the fresh water conditions of the Amazon basin.

Sting rays are certainly not aggressive, still they do have a stinger on their tail, with a relatively toxic poison (not lethal, but may cause fever and infection). They normally only use this stinger when hunting their prey, but will not hesitate to use it as a defence if you were to step on them. Stepping on them is possible, because of their habit to look for shallow spots of the river to lie and warm up in the sun, they may even cover themselves with sand, so you cannot see them. This shallow spot may be where you are putting your feet to have a refreshing bath. To avoid this meeting of sting ray and your feet, you should announce that you are going into the water at that specific spot. You can walk stamping your feet when getting to the shore; you can throw something in the water, or use a stick or your hand to stir the water where you wish to get in. Since the sting ray is not aggressive, it will certainly make way if it realises you are coming.

**ORIFICE FISH** Danger: 2/Occurrence: 1

**This fish horror story has not been proven to be true in Manu.** This is the story that gives people most fear, but has never happened all the years

tourists are visiting the park. It actually has never even happened in the last 40 years to local colonists or Indians!

The orifice fish is a small, about 1 to 1,5 cm long, catfish that swims up the gills of bigger fish. It sucks blood from the gills and only lets go when it is completely filled, and swims away. This is no problem to the bigger fish. The problem for humans would be the fact that the orifice fish can only swim in one direction, due to bristles at the end of its body. This is no complication to fish, since the orifice fish swims up the gill and out of the mouth of its 'host'. However, in human bodies only one-way orifices exist, meaning the fish would not be able to swim away after drinking blood. Then one could get an infection, and would have to have it removed surgically.

This fish is extremely rare, and prefers orifices with both entrance and exit, explaining the very low incidence of occurrence. One should just make sure to have as many body orifices covered as possible: always swim with a bathing suit, shorts, or anything which is really tight to the body. Then just forget about it!

**INFECTIONS & DISEASES** Danger: 2/Occurrence: 1

**Lots of water and few inhabitants make infections and diseases rare in Manu.** Because of the very low human population in Manu and the high volumes of water, most of it running, contamination of the water is that low that humans can use it as drinking water without purification measurements. We provide you with mineral water on our tours, only because of the waters' sandy appearance.

**BOAT ACCIDENTS** Danger: 2/Occurrence: 1

**Boat accidents are very rare. Do not move unexpectedly.**

The boats we use are long canoes, about 15 metres long and 2 metres wide in the middle part. This is the most stable and fastest type of boat to use on the rivers we travel on. When you try to get on board and step on its sidewalk, it will give completely away under your weight, giving you a feeling of utter instability. However, as soon as you are all installed in your seats, the boatman will balance the weight in the boat with the equipment. Then the boat is actually very stable, especially when going forwards. However, this is only as long as there are no unexpected shifts in weight. Therefore, we have to ask you to stay in your place as soon as the boat trip has started. This means you should have everything you would like to use during the boat trip with you in a day pack (e.g. binoculars, camera, water, rain