

## ***TRIP NOTES***

### **NORTH SULAWESI, INDONESIA TRIP APRIL 2005**

Please note that trip notes are exactly what the name suggests. They are not polished literary works. If you want to know something specific about the area visited, feel free to e-mail me.

#### **North Sulawesi**

This was my first trip to Indonesia and I was keen to explore the marine bio-diversity that the region is renowned for, in addition to making a comparison between the Philippines which I dived in December and January 2004/05.

Overall the trip was a success with over 39 dives completed in the three and half week period. Furthermore, I found the time to visit two active volcanoes in the region and visit one of the nature reserves to observe the macaque primates.

#### **Indonesia – General Information and Experiences**

North Sulawesi is not exactly on page one of a travel guidebook. The main commercial centre of the region is Manado. To travel to Manado was a dogleg of a travel route. Initially, I departed Hobart and transited for 4 hours in Melbourne before departing at midnight for a 8 hour flight to Kuala Lumpur (KL). At KL I transited for 3 hours and departed for Denpasar (DPS) for a further 3.5 hour flight. At DPS I transited for several hours due to aircraft maintenance problems with the Indonesian airline DragonAir. Finally I departed DPS at midnight, and after a staging stop en route for 30 minutes, finally arrived at Manado at 0430.

On my return flight, I was required to transit for one day in Denpasar (Bali). I was not at all impressed with this area and my poor impression will ensure that I transit through Singapore if visiting north Sulawesi again. Of course if you are after prostitution, lots of tourists and locals trying to fleece you of your money at every street corner, then Bali is probably a good place for you to visit.

#### **Religious Zeal**

Despite the opinion that the media would have you believe, Indonesia is not full of radical Muslims totting AK47 assault rifles and prayer books. I met both Christians and Muslims on my trip and both were equally friendly and helpful. North Sulawesi is however mainly Christian and Protestant with a culture developed from the early Dutch and Portuguese colonisers.

#### **Manado – Commercial Hub**

Manado is a typical third world city - overcrowded, dirty, dusty, busy and noisy with poor infrastructure and corrupt officials at most levels. Although this city is not Sydney, Australia the CBD and port area does have a certain charm with merchants selling their wares at open air markets and from the backs of vehicles and motor scooters. The local meat market is an ideal location if you want to savour food poisoning or some other far flung exotic disease. The meat, stored for eternity in the boot of car, is carved up on a disused piece of wooden board to anyone who cares to part with paper monetary notes (and who knows where they have been).

Although several of the government buildings are quite presentable, many other buildings are barely standing and some buildings look like they are part of a World War Two movie set.

As with any other Asian city, rubbish is everywhere, but not within the shiny new silver rubbish bins.

The city's port is an eye opener even if you know very little about workplace health and safety. Rickety wooden boards join rusty ships that have seen better days and scantily clad seamen move from ship to shore loading and unloading produce and other merchandise.

The architecture both in Manado and outlying areas has a Spanish, Portuguese and Dutch flare to the traditional wooden Indonesian construction. Don't be surprised to see Dutch flower boxes on a traditional wooden dwelling or arches and stepped walls in front of a cement rendered building. The Indonesians like colour and many of the buildings are vibrantly coloured in blue, red, yellow and orange.

Despite the old run down buildings, squats along the river and rubbish everywhere, there is still room for a large air conditioned mall selling everything from Ethiopian coffee to cell phones.

### **Bunaken Marine Park**

If you have a sounding in biology and zoology you no doubt realise that central Indonesia straddles an imaginary line called the Wallace Line. The Wallace Line represents an area that has the highest biological biodiversity in the world. This biodiversity was the main reason I wanted to visit the region.

Bunaken Marine Park protects an area of 79,056 Hectares encompassing five islands. Its relatively unique in that it incorporates protection of its natural resources whilst providing sustainable living for 21,600 people living in 15 villages on five islands within the park.

When so many people are located in a protected area, it's always a dilemma between the standard of living for the locals and the level of protection given to the habitat and the species it contains. Does this combination work well? Yes and no. In my opinion, part of the pleasure of a natural area is knowing that it is untouched, unspoilt and uninhabited. Unfortunately, Bunaken Marine Park with its high resident population does not fall into this category. Several villages are located on the shores of the park and the tourist numbers visiting the area are very high. Although this probably does disrupt many terrestrial and marine animals that live within the confines of the park, there is no dispute that marine animal numbers, especially fish species, have dramatically increased since commercial fishing has been banned within the park boundaries. It is unfortunate that in Indonesia and other Asian nations, getting away from people and their activities is almost impossible. Ultimately, it is the tourist and money making potential that provides a blanket of protection for the region.

Admission charges to the marine park in association with non government (NGO) grants and donations generate considerable funds which are funnelled back into the administration of the area. Marine police and park patrols are present in the park and officials regularly check identification and park permits. Christine, the owner of Froggies Divers has worked tirelessly to develop a warning system whereby locals who see untoward activities occurring in the park can report the occurrence to officials, who will take the matter further. The local inhabitants of the park are slowly being educated to the fact that more money can be received in protected the park's resources than by exploiting them.

### **Schools of Plastic Bag Fish – Major Concern**

One aspect of human habitation in the area that did concern me was the volume of rubbish both on the islands and in the sea. During some dives, I saw schools of what I call plastic bag fish. There were hundreds of plastic bags floating by. In some parts of the reef where currents meet and diverge there are sheets of plastic wrapped around corals and plastic stuck deep within the reef structure. The coral has actually grown around the bag.

All groundwater in Indonesia, with the possible exception of remote mountainous regions is contaminated with coliforms from poor or non-existent septic systems. The increase of coliforms is one of the nasty legacies of high population rates. A direct result of this is that all drinking water must be supplied in plastic bottles. Unfortunately, the bottles are not recycled but disposed of everywhere. The locals blame the mountain people for dumping the rubbish into the major streams, which discharge to water surrounding the park, and the mountain people blame the Philippines and the ocean currents. Whatever the reason and whoever is responsible is not the point – Asian waterways are very highly polluted with anthropogenic rubbish. I noted that at one resort the cleaners only picked up leaves and sticks from the beach but left plastic bottles and other rubbish! It's incredulous that the locals do not seem to care about the state of the environment.

### **Local Transport**

Local transport is via public motor vehicles (PMVs). These vehicles are usually blue coloured commercial people mover vans. Low CC motor bikes and motor scooters are also very popular.

My driver decided I was in a hurry and my taxi cab was turned into a fast moving emergency vehicle with the addition of a blue flashing light and sounding of a siren. Obviously this stunt was common place as other vehicles zapped here and there sporting similar adornments, ignoring each other, and real life ambulances with real life emergencies.

Motor scooters are everywhere and the locals ride their machines like Tom Cruise flies his F18 in the movie Top Gun. The riders must be highly religious in their beliefs because the stunts they pull on the street in front of trucks and other larger vehicles would cause any driving instructor to suffer immediate cardiac failure. Apparently, one motor scooter rider is killed each day in Manado leaving ample room for the recruitment of more danger seekers.

### **Food and Condiments**

Traditional Indonesian food is spicy. Not mildly spicy, but seriously spicy. Many resorts and restaurants westernise the food by not cooking it with chilly. If you do not throw up a sweat in 5 minutes then the food is not traditional.

I was not game to try eating the wide variety of food available from side stalls in most streets, however, I've been told the food is quite tasty. I guess I know a little too much about bacteria to sample these roadside delights.

I ate at a number of different restaurants and what I found the most interesting is the method in which you pay for your food. Rice is steamed and wrapped in a banana or palm leaf. Each leaf holds a certain volume of rice. Other food stuffs are brought to you in dishes and bowls. At the end of the meal the waitress will come to the table and count the remaining number of rice parcels uneaten in addition to chicken pieces, corn cobs and other mains remaining. She will then do a quick calculation subtracting the amount missing from what was supplied and provide a bill for the difference.

### **Diving – Bangka Island, Lembeh Strait and Bunaken Marine Park**

Unfortunately inclement weather shortened the distance we could travel aboard the Serenade liveaboard dive boat I had chartered for one week. Despite this, I was able to complete quite a few dives at Bangka Island and in Lembeh Strait. The diving was quite good and the coral diversity excellent. Invertebrates were very common and fish life was plentiful. Certainly the diving is not comparable to some areas I had dived in Papua New Guinea, but considering the pressure this area is under from traditional and commercial fishing and overpopulation, it was quite good. I did not actually see any bomb damaged reefs, however, I have been told that this type of fishing is very common place in Indonesia and has only recently been controlled with the confines of the marine park.

### **Diving – Lembeh Strait**

Lembeh Strait is completely different diving to coral reef diving. The terrain is black volcanic sand, visibility is limited and currents are usually minimal. The marine life observed on black sand is amazing. Switch off coral and coral fish, instead concentrate on the unusual and bizarre. Crocodile snake eels, several varieties of scorpion fishes, ghost pipe fish, weedy frog fish, miniature frog fish and an assortment of sea urchins, flounders and specialist gobies are the norm. The main downside to diving Lembeh is the amount of rubbish in the water. Plastic bags and other rubbish is both in the water and on the land.

### **Diving – Bunaken Marine Park**

From the first dive you are amazed at the biodiversity of coral. I'm not a coral buff, but even to a non trained individual the number of species is incredible. Most of the diving in the marine park is very steep wall diving; the walls being a characteristic of the regional geology. Slopes comprising coral and sand can also be found, but they are not common. Water depth is variable with most walls eventually tumbling away to depths greater than 300 meters. Water depths between the islands of the park have been recorded between 300-1800 m. Horizontal visibility is also variable ranging from 10 meters to 30 meters depending on prevailing currents. Because of the position of Bunaken, currents which include upwellings and downwellings can be quite severe. It is not unusual to have a horizontal current going one way at depth only to swing the other way as you ascend. Thermoclines were very prevalent at the time of my visit (April) and some thermoclines were in the order of a 5 degree Celsius drop in temperature.

Because of the lessened chance of exploitation within the park, fish numbers have increased rather than decreased, as in areas outside the park. I observed coral fish species not seen outside the park, in addition to large schools of tuna, bonito and trevally. Shark densities are quite good with the prevalent species being the black tip and white tip reef shark. Although I did not observe any manta or devil rays, I did see spotted eagle rays.

Invertebrate life was superb, although there was a definite lack of nudibranch species other than a few of the more common *Chromodoris* species. This does not mean that the diversity is not there, but rather is probably a reflection of predator/prey relationships and nudibranch life cycles.

Crustaceans were well represented and spearer and crusher mantis shrimps were commonly seen during many dives. On night dives, painted crayfish, bugs, sponge crabs, speckled and barber shrimps, sea spiders, colourful sea urchins and hairy crabs were observed.

Cryptic marine life was evident on the less prevalent sandy flat areas and several species of goby, sand eels, moray eels, ribbon eels, jaw fish, scorpion fish, lion fish were observed. On one dive, I observed two blue phase ribbon eels and a black phase ribbon eel. Ribbon eels are

notorious for being cryptic and I was lucky to observe them at very close quarters. Ribbon eels are not to be confused with the larger moray eel; ribbon eels rarely exceed 1 meter in length.

On another dive along a steep wall, I discovered a small sandy ledge carved out of the wall by the prevailing currents. The real estate on walls is minimal and horizontal areas are always in great demand. In this area, I noted half a dozen goby species with their resident shrimps and a large mound like structure with three openings the size of a baseball. I thought it was a the home for a large mantis shrimp, however, was surprised to see a very large jaw fish emerge to protect its domain.

### **Active Volcanos and Primates**

The density of active volcanoes is higher in Indonesia than in any other region worldwide. This is because the Indonesian Archipelago is situated along several tectonic plate boundaries. If you bother to look out of the aircraft window when flying from Denpasar to Manado you will note that you fly over several large volcanic craters, cones and extinct calderas. One of the islands, Manado Toa, closest to Bunaken Island is the stratocone of an extinct (or I should say dormant) volcano. The difficult terrain of the volcano has inhibited loggers from logging the primary rainforest that is found along the volcanos upper reaches. The rainforest is habitat to a small population of endangered Crested Black Macaque primates (*Macaca nigra*)

I took the time out from diving to climb Klabat volcano located on the mainland several kilometres distance from Manado. Klabat volcano and its more active sister volcano Lokon are the major volcanoes in the area. Lokon volcano has two active craters, recent lava fields and several active vents. Both these volcanoes are geologically young and have formed within a huge collapsed caldera of a much older volcano which erupted long ago. The collapsed caldera now been filled by the waters of Lake Tondano.

### **Klabat Volcano**

Klabat volcano is ~1200 m in altitude and is a andesitic stratovolcano. The access track is well worn and passes through vegetable fields planted on the volcano's lower fertile slopes before passing through low rainforest to eventually reach the volcano's crater rim. A narrow dog track winds its way around the precipitous crater rim, its inner side plummeting 800 odd meters to the crater floor. The crater rim is approximately 2 km in circumference and it's a surprise to uninitiated visitors who expect the top of a volcano to be relatively small in size. Tall grass surrounds much of the crater rim and the dual craters and vents of sister Lokon volcano can be seen in the distance. Lokon volcano is often surrounded in cloud during the early morning as ambient temperatures condensate warm air. The crater floor has a number of large mud pools and steaming water pools and the smell of sulphur dioxide (SO<sub>2</sub>) permeates the air. Klabat volcano last erupted in 1992, and although the less active volcano of the complex, still has the ability to generate a large explosive eruption in the future.

Several other active volcanoes are located in north Sulawesi, however, diving and climbing volcanos doesn't go hand in hand because of nitrogen absorption during diving and the risk of decompression sickness developing during an arduous climb to altitude from sea level.

### **Crested Black Macaque Primates (*Macaca nigra*)**

Whilst on the mainland I decided to visit the Tangkoko Nature Reserve to observe the macaque primate *Macaca nigra* and speckled tarsiers (*Tarsis spectrum*). I really didn't expect to find these endangered primates let alone get close enough to allow a photograph.

The reserve is quite small and the area is totally protected. Despite this, illegal hunting of the primates does occur as several villages are located adjacent to the park boundaries. A guide must be hired to lead you through the maze of trails through secondary rainforest.

Crested black macaques are endemic to north eastern Sulawesi and are found nowhere else on earth, except for a few isolated areas such as the Tangkoko Nature Reserve and Manado Tua. Macaques live in a variety of habitats including lowland rainforests, beach forest, coconut groves and gardens. At Manado Tua a small population of 90 odd individuals occupy the primary rainforest on the peaks of the dormant volcano.

The primates favoured foods consist of fruit, fungus, sap and bark. Protein is obtained from eating insects and spiders. Its preferred fruit are figs and this incorporated roughly 30% of the animal's diet. Macaques are very important to the forest ecology as they act as seed dispersers for native tree species, which in turn provide food and habitat for other animal species. The primates spend about half their time in trees and the remainder on the ground foraging for food. They sleep in the canopy by pulling leaves together to form a nest bed. On average they may travel 4 km per day.

Male macaques reach a size 11 kg while females weigh in at 7 kg. They live in highly social and organised groups of 30 to 100 individuals, although groups in some locations only reach 10 individuals. Generally there are 4 female to 1 male, but in some areas such as Manado Tua the sex ratio is much lower. Adult males form dominance hierarchies with the biggest and strongest individuals securing the best food stocks and mating with the most females. Adult females form very strong bonds with other group members and relatives through continual grooming and raising infants.

The major threat to this species is hunting, deforestation and the creation of small forest mosaics such as at Manado Tua. Individuals that inhabit small patches of isolated forest usually do have the genetic variance to maintain a healthy population.

**Biologists unfortunately have predicted that given the current rate of consumption by locals and deforestation, crested black macaques will likely be extinct in the wild in the near future.**

The primates are fairly easy to track as they pull small trees down and destroy leaves. The group's scout will see you before you see them. The scout was located in a tree and easily saw us trekking along the trail giving a verbal warning to the main group. The next line of defence was two primates along the edge of the track. One of the two macaques rushed me and it was clear that I had intruded within its personal space. The quiet animal suddenly bared its teeth, made a grunting sound and chased me until I had exited the imaginary line. A little further along the trail, the main group of approximately 40 macaques was encountered.

Sitting quietly in the rainforest, the macaques soon realised we meant no harm and they moved closer to investigate. One male macaque climbed onto the guide's shoulders and began to preen itself. I collected from the forest floor a largish 6 inch green metallic coloured millipede, placed it on a dried leaf, and held it out to the nearest macaque. Defiantly, the primate stared me in the eye before cautiously reaching out and snatching the free morsel. The group moved closer and I observed four small macaque babies playing in the tree above

me. Bored with tree play they slid to the ground and began to annoy the parents. The encounter was about 20 minutes before the group decided to move on.

### **Speckled Tarsiers (*Tarsis spectrum*).**

Further into the park we were shown a large rainforest tree that had succumbed to a giant creeper vine. The vine had survived the war and the rainforest tree had died rotting away to reveal a vine shell. You could stand where the centre of tree once was and look up into the interlacing vine branches. This is the habitat favoured by the speckled tarsier.

The tarsier is thought to be a primitive primate – distantly related to human beings. They are one of the smallest primates in the world, reaching a little over 100 grams in weight. They have huge eyes for their body size to see well in the dark and have large ears that can move independently of each other to fine tune the detection of forest sounds. They also can twist their head 180 degrees like other night animals, such as owls. The legs of tarsiers are twice the length of their body to allow them to leap from tree to tree.

Tarsiers eat insects such as ants, beetles, moths, cockroaches and grasshoppers. On occasion they will also eat forest geckos. Tarsiers leap onto their prey and pin them down using their long slender fingers.

Tarsiers are territorial animals forming family groups. They mark their territories with urine and protect their hunting boundaries with loud shrill cries. They travel within an area of 4 hectares and sleep in during the day in the tangled root structure of a stranger fig tree, or within a bamboo thicket or other hollow tree.

The main threat to tarsiers are habitat loss through deforestation and capture by locals for the international pet trade.

The tarsier only leaves its nest in the early evening or at dusk to roam the forest in search of insects. Catching this moment can be difficult, therefore, we lay a trap by releasing several recently captured grasshoppers at the base of the tree. Within 20 minutes, a small juvenile tarsier ventured from its nest and gingerly captured the grasshoppers with lightning speed. I actually blinked and missed the grasshopper impalement. The speed that these primates can capture food is absolutely amazing.

I spent five hours in the forest interacting with the macaques and observing the tarsiers, rainforest birds and a magnitude of colourful and large butterflies. If you decide to visit the reserve, ensure you wear appropriate clothing (long sleeved shirt, long trousers and a hat) and cover yourself in insect repellent. The area is renown for its malaria carrying mosquitos, 100% humidity and a species of mite that manages to crawl beneath your clothing only to indicate its presence four days latter by presenting in many small and very itchy bites.

The experience interacting with the macaques is well worth the effort and I would definitely recommend an excursion to the nature reserve.