

Pulau Langkawi, Malaysia
29 January – 10 February 2008
14 – 22 March 2014

I - Introduction

During two stays on Pulau Langkawi, Malaysia, it was possible to make some wildlife observations on the island. Here they are, presented following zoological groups, just after a short description of the landscapes. The references used are mentioned in the bibliography at the end of the text. However, any error, misidentification or mistake is under my own responsibility.

Langkawi is in fact an archipelago made of nearly a hundred islands and islets located in the Andaman Sea, to the North-West of Malay peninsula, very close to Thai border (Zimmerer 2004). The total area covers a little more than 500 km², with 478.5 km² for the main island, Pulau Langkawi. The peninsula is located about 30 km East and is quite visible from the island when meteorological conditions are fine.

The archipelago geology is quite complex. On the island, it offers nice hilly landscapes. Sedimentary rocks prevail (sandstone, limestone, marble). Following the places, the shore is lined with sandy beaches, cliffs or covered by mangrove (to the North-East). The summit goes up to 881 m asl at the top of Gunung Raya. Covered by tropical rain forests initially, Pulau Langkawi is partly cultivated today (rice fields, rubber plantations, vegetables, orchards, pastures) but also oriented towards a real development of tourism with quite a lot of hotels, resorts and accommodation possibilities. The local economy is also partly agriculture, fisheries and fish farming, industry (cement factory) and trade (duty free zone).

II - Stay

The two stays on the island were from 30 January to 09 February 2008 and from 15 to 21 March 2014. In 2008 we stayed at the Lanai Beach Hotel, located on the South-West coast, in an open, cultivated, landscape. In 2014, we stayed at the Andaman hotel, to the North-West, in the forest, within a protected area, the Machinchang Cambrian Geoforest Park, covering 4,274ha. During the two stays we visited by boat the Kilim Karst Geoforest Park mangrove (2,415 ha), on the 02 February 2008 and on the 17 March 2014. In 2008 we started from the north jetty, after the Four Seasons Resort. In 2014, we started from Jetty Kilim. In 2008 we rent twice a car for 24h each time. We visited twice Berjaya Langkawi Beach Resort place, interesting for forest fauna, once Andaman hotel garden and we went to the top of Gunung Raya by car. Langkawi cable car was running in 2008 and we used it. It was not running any more in 2014 and its exploitation looks like over. In 2014 we made a bird watching tour on the afternoon of 18 March (mangrove jetty, Gunung Raya, Bon Ton restaurant wetlands).

During the first stay, we visited twice (01 and 06 February 2008) the Marine Park of Pulau Payar, located 19 sea miles to the South. The few data from these trips have been added to these field notes. In 2014 we had a true tropical rain on the first afternoon on our arrival. We have been told on this occasion that this had been the first rain in a three month time. It is unusual that so little rain had been recorded during so long. Nice weather the rest of the stay.

III - Mammals

Most of the identifications, information and systematic are coming from Medway (1969), Harrison (1974), Lekagul & McNeely (1977), Corbet & Hill (1992), Zimmerer (2004), Wilson & Reeder (2005), Francis (2008), Baker & Lim (2008) and Shepherd & Shepherd (2012). Only wild and free ranging species are mentioned but a few words are said for dogs, cats and domestic water buffaloes. In 2008 there were a few captive animals like rusa deer, *Cervus timorensis* (?) at the foot of the cable car station. At least an elephant, *Elephas maximus*, was also present, suited to carry tourists into the forest. We did not visit the place in 2014. A few species not observed but for which a few information were gathered have been added.

Dermoptera

Cynocephalidae

Malayan flying-lemur, Sunda flying lemur, *Galeopterus variegatus terutaus*, Colugo, Kubong.

The flying lemur is certainly one of the must of the island, where it is really easy to spot and to observe. Langkawi has indeed the reputation to be one of the best places to see it (Janecka *et al.* 2007, Lim 2007). The observations were all done in the parks of two hotels located in the North-West of the island, Berjaya and Andaman. In 2008, two afternoons at the Berjaya (31 January and 07 February), one afternoon, one evening and one morning at the Andaman (03-04 February). In 2014, every day at the Andaman.

The first impression given is that colugos are rather smaller than imagined with a lot of variations between individuals, even between adults (females with young for instance). When resting they are a little contracted. They look larger when evening comes, i.e. when they start their active period. Their necks and all four limbs are in fact quite long.

During the day they stand absolutely still along a tree trunk, in mid-storey or even quite low, under the shadow of the canopy, sometimes fully exposed, sometimes under epiphytes ferns, or even taking advantage of a roof, as they may choose very close to buildings. During the day they may however move to stay in the shadow by turning around the trunk, or if disturbed. Their sharp and long claws, in connexion with specific and large pads, are able to hold them effortlessly even along a smooth and vertical trunk. The size of the preferred trunk is variable. The animals seen were not very high above the ground, sometimes not very much than 2 meters, but we don't know where those not seen ! The colour and pattern of their fur mix grey and brown with many white spots. In some individuals, this gives a speckled appearance over the head and the front legs. These white markings are sometimes organised in lines over the forearms and the shoulders. Some individuals have a large symmetrical dorsal pattern, greyer than the sides. Mimicry with the lichen covering the trees is impressive, even if it is not true for all colugos. In 2014, I made pictures of all the animals seen, everyday, to try to find out if photo-identification is possible.

In 2008, we saw three times adults, most probably females, with a young. Same figure in 2014 but I have to check if once, it could not be the same animal seen on two different trees.

Sexes maybe not so easy to recognise as it is said that sometimes males may carry the young. However, here in Langkawi it is also said that males are chocolate with white spots when females are most of the time grey. In 2008, three times we saw a couple, the male (chocolate individual) less than one meter below the grey animal along the same trunk. Twice the female was carrying a young. In 2014, on the same trunk, under two rings of epiphytes ferns, there was, above, under the higher ring, two females or a female and a large young, resting every day side by side and below, under the lower ring, a male. One evening we saw the two "females" ready to go. One of them was carrying a very small young.

It was night around 7.30pm but darkness under the trees was earlier. Colugos were starting to become active around 7pm. Observations of behaviour, interactions, movements, were done between 7pm and 8.30pm. When landing on a trunk the animals seem to smell very carefully the bark. They climb up the tree quite slowly as they spend a lot of time smelling. In 2008, at the Andaman, an adult land quite low on a trunk and stayed a few minutes motionless with its tail up over its back, then hold horizontally, clearly to empty its intestines. When up this way, the tip of the tail is not far from reaching the head. We saw this again on different occasions in 2014. Every time the animals had moved from the tree on which they had spent the day.

In 2008, a female started to lick her young (or her own under parts ?) inside her patagium when the young, with its head outside, was licking the flank of its mother. Later that night, when the gliding had started, two small individuals land one after the other on the same trunk, less than 2 meters high just in front of us before starting to climb up the tree, slowly.

We saw also gliding in 2014. Climbing up a trunk is done by a succession of hopping with the four legs, kept parallel two by two. The hind legs are kept parallel and bent, pads pressing on the support, when the forelegs are embracing the tree.

In 2008, we found a female and her young at the same place just before the time of activity eight days apart at the Berjaya and an animal seen on the afternoon at the Andaman was spotted next morning on the closest tree. It looks as if they were the same individuals. In 2014, a few trees were occupied each day of checking, presumably by the same animal. Pictures were made to check if photo-identification is possible.

At the Berjaya, we observed foraging sessions on the two evenings. Each time, at least three animals were together in the same tree. The first evening they were easy to spot, hanging upside down under small branches, not very high, using their front legs to bring the leaves close to their mouth. When moving this way, they are not unlike large flying foxes. On the second night, this tree was empty when we visited it. This time the colugos were feeding in the canopy of a very tall tree, nearly out of reach of our torch lights. A few individuals were gliding towards this tree. They were landing on the trunk and then hopping to the top. We had lighted this big tree on the first evening without noticing anything. We did not find any feeding place in 2014.

The glides are really spectacular and use to start by a quite low sequence when the animal put its neck forwards before jumping. On a movie seen after the first trip, it is possible to notice a flapping of the tail and of the patagium between the hind legs just before landing. We did not notice that but probably our observation condition did not allow us to see it.

Every thing is really silent. The landing of an individual on a tree trunk juts in front of us was nearly noiseless. We never heard a single sound produced by one of the colugos.

The species is really still numerous in Langkawi where it could easily be studied. The parks of these hotels could represent a quite comfortable working field.

Chiroptera

Nearly every evening we saw small bats flying around the lights where we stayed. However, their identification is not easy this way. During the two stays we visited a cave during the mangrove cruise. This cave is said to harbour at least four bat species including a fruit bat and a bent-winged bat, *Miniopterus sp.* We saw 2 different *Hipposideros* species in 2008 and 3 in 2014 but nothing else. The large flying foxes, *Pteropus sp.*, colonies are located on islets to the North of Langkawi and we saw none in 2008 and in 2014.

Pteropodidae

Malaysian fruit bat or Lesser dog-faced fruit bat, *Cynopterus brachyotis*, Chechadu pisang. Observation of a small group of 6 individuals in 2014. I saw them everyday under the same bent leaf of a small palm-tree, by the swimming-pool, close to the shower, at the Andaman. At night they don't leave before 7.30pm-8pm.

Hipposideridae (Kelawar ladam bulat)

In 2008 we saw apparently 2 *Hipposideros* species of quite different size, both with a uniform dark-brown fur, in the cave that is visited every day by tens or even hundreds of people during the mangrove tour. At least 5 species of this genus have been recorded from the island. In the cave, the large one, sometimes close to the path where visitors walk, is probably the Great roundleaf horseshoe bat, *Hipposideros armiger*, Kelawar ladam bulat terbesar. On some of the pictures it is possible to see 4 lateral skin folds by the nose-leaf, the outer one being very small. It is also possible to tell males from females in this species. Males have a swollen zone just behind the posterior nose-leaf, not present in females. We saw it again in 2014, as well as the same smaller one, resting further inside the cave and with no possibility of identification, at least for me.

In 2014, a third *Hipposideros* species was present, 3 individuals resting close one from each other, Diadem roundleaf bat, *Hipposideros diadema*, Kelawar bahu puteh. The white patches along their rufous-brown flanks are criteria for identification.

Vespertilionidae

A small evening bat, vespertilionidae family, the size of an European common pipistrelle, apparently with a two colour fur, was seen flying over the small creek coming out of the pond behind the Lanai on the evening of 07 February 2008 around 9pm. At least 3 individuals were flying together only 1 m above the ground or the water, with some interactions face to face on the wing. Pictures were made. In 2014, tries to take pictures of bats flying inside the lobby of the Andaman, but no possible identification.

Scandentia

Tupaiaidae

Common treeshrew, *Tupaia glis lacernata*, Tupai munchong besar, Kenchong

In 2008, the only possible observation of treeshrew was on the afternoon of 02 February in the forest on the small hill juts behind the Lanai. I staid there, sitting by a small path from 5pm to 7pm. Four times, a small animal with a bushy tail, hold straight and squirrel-sized, rushed on the ground. Each time, visibility, distance and the very short observation time did not allowed me to confirm identification but I don't see what else it could be (Emmons 2000). I went back 4 times (04 February from 5pm to 7pm, 05 February from 3pm to 7.15pm, 07 February from 07.40am to 09.20am and 08 February from 3.30pm to 6.30pm) i.e. a little over 12 hours of observation without any more success.

No much better in 2014 with a single observation, as short, on the path to the forest behind the hotel, 19 March, at the end of the morning. A small animal appears on the path just in front of me, in full view, but turns back as quickly and rushes to the cover. It should be the same species as it was not a squirrel.

Primates

Two species of monkeys are known from the island as well as the Sunda slow loris, *Nycticebus cougang*, Kongkang, Kera duku, but we did not saw it (Groves 2001). Medway (1969) does not mention Langkawi in its distribution but it is said to be present following Mittermeier *et al.* (2013) and local information.

Cercopithecidae

Dusky or spectacled leaf monkey, *Trachypithecus obscurus carbo*, Chengkong, Lotong berchelak.

The dusky leaf monkey is really a spectacular monkey. The white eye rings and the white lips are typical. The males present on their head and nape a cream-grey tuff, whiter and larger than females. In 2008, we saw this species in the Berjaya and Andaman gardens but also along the road between Datai and Andaman hotels, under very good conditions. It was possible to get as

close as a few meters. It was the end of their mid-day resting time and they were resuming their afternoon feeding session. They were in small trees, close to the ground. They were eating the green fruits organised in stars of a vine. The three groups seen in 2008 had all a female with a ginger baby. In one case this infant was hanging only with its arms and hands, the legs looking paralysed. We also had a far view of a troop in the Datai garden and a last one of an individual, adult male (?), ready to cross the road by foot in front of us and turning back swiftly when we drove by. The group seen on the 07 February was looking very nervous, with a lot of shouting and chasing, especially from the adult male (?).

In 2014, the observations made around Andaman hotel were also very nice and interesting. I have no idea of the real number of different troops present there. A family with a ginger baby seems to spend the night high in a tall tree to the North, above the spa. They are regularly seen on this side of the hotel. On the first afternoon, one observation of a couple with an orange baby but I may have missed the others. The small family could belong to this group. A group with a ginger baby and two juveniles observed from 1.30pm to 2.30pm during their mid-day resting session from the hotel South balcony on the 16 March. The 2 juveniles are playing in the branches and vines when the adults are nearly motionless. The tail of the juveniles gets darker later than the rest of the body. A few island sub-species are recognized by their yellow tail, a juvenile character. The day before, on the 15 March afternoon, we observed from a distance a group with apparently two females, each with a ginger baby. They were seen from the hotel, looking to the sea. The last afternoon, Thursday 20 March around 7pm, observation of a group with an already dark juvenile but still with a yellow tail and of a female carrying two orange babies. The group is in the large trees just at the entrance of the hotel. The hotel staff points for me the mother "with 2 babies". At the beginning they are high in a tree, half hidden by the leaves and not easy to spot. Then they leave the trees and come down in full view, crossing the roof of one of the entrance building before continuing to other trees. It is impossible to tell if they are twins but the observation is great. The female carries them on her chest when travelling. They really look the same and have the same size. In this species, twins are said to be unusual but allo-nursing is possible (Mittermeier *et al.* 2013).

We saw a group with a female and a ginger baby during the mangrove tour on the 17 March 2014. They cross the river by jumping between trees just ahead of us.

Long-tailed or crab-eating macaque, *Macaca fascicularis*, Kera

In addition to its long tail, this species is recognizable through the hair on the face, including a beard in adults. Infants are black when adult are brown-grey. In 2008 we saw them in the North-East of the island during the mangrove tour, different times along the roads when driving, along the road up to Gunung Raya, in different popular places and also in the forest behind the Lanai hotel where they looked very shy. By the mangrove, a few groups are used to look for food in the water. Visitors throw them foodstuff in the water. In 2014, we saw them along the roads on around the Andaman hotel. Observations on the beach at low tide and probably of a troop coming out of a room with an open window ! They need to be watched at. On the 19 March, around 4.45pm, a female comes straight to me at the hotel bar as there are peanuts on my table. We must be two persons to chase her away. She starts by showing her teeth. The same day, around 6.30pm, an individual (the same ?) enters our room through the open window when we are both inside. We have to shout to make it go away.

We saw a few females with black infants during both tours.

Rodentia

Sciuridae

Black giant squirrel, *Ratufa bicolor fretensis*, Tupai kerawak hitam.

A really large and nice squirrel, completely black above and rufous-orange below. The cheeks are the same colour as below when they are said to be nearly white (mainland populations?). Only seen twice in 2008, and not so well. On the afternoon of 07 February, an individual is seen lying along a horizontal branch of a large tree in Berjaya garden. On the 08 February morning, when driving down from Gunung Raya, we spotted an animal in a tree. It disappeared swiftly.

Nice observations in 2014 in the trees of the Andaman hotel, not everyday but sometimes more than once the same day. They are often in bastard almond trees, *Terminalia catappa*. They seem to appreciate their nuts. Sometimes seen with the *Callosciurus* species. Sometimes not higher than 2 or 3 meters above the ground when they are said to live mainly high in the trees. On the 20 March, in the middle of the day, I spot an individual travelling between trees and arriving in a bastard almond tree just by the beach. Another squirrel is already in that same tree. They start to fight and shout less than 2 meters above the ground, dropping leaves on the persons lying on the beach just below. Then they jump on the ground in low bushes where they disappeared. I did not find them afterwards.

Grey-bellied squirrel or golden-backed squirrel, *Callosciurus caniceps lancavensis*, Tupai teratak, Tupai kelabu.

Seen in 2008 as in 2014. This smaller tree-squirrel, with a plain grey-brown colour is present nearly everywhere: in the forest, in hotel gardens, in villages, sometimes on or even in buildings. Swift, it is always on the move, even late at night after complete dark. Sometimes a single individual, sometimes up to 3 together. They may chase each other and they are quite vocal. It can be seen together with monkeys and birds in trees with ripe fruits. Sometimes quite confident, even bold, like in the Andaman hotel bar, sometimes shy. They may then produce loud alarm calls. At the hotel bar they come to pick up scratches under the table or to drink in the floating candles pots on the tables. An individual was still active at 10.05pm in Andaman garden trees, lighted, on the 17 March 2014 evening. An individual climbing along the tree trunk with a big hole, standing on one of the islands of the Andaman hotel swimming pool, already occupied by a pair of hill minas, is seriously mobbed away by the birds.

Red giant flying squirrel, *Petaurista petaurista melanotus*, Tupai terbang merah, Kubin, Kandau.

In 2008 we saw this large flying squirrel on the evening of 31 January, at dawn, in Berjaya hotel garden. It looks heavier than the colugo and reacts much more rapidly when caught in a torch light beam. Its long bushy tail is totally out of the patagium, which represents another difference when they glide.

Seen again in 2014 in one of the large trees with ripe fruits just in front of the Andaman hotel lobby entrance. During daytime, hornbills, pigeons, bulbuls and Asian blue birds are feeding on the same fruits. On the evening of 18 March, the tree is empty just after dawn, and still empty between 10pm and 10.30pm. I come back at 11pm. An individual is arriving in the tree and a second one is closer of the hotel in another tree. The night warden showed it to me. The first one is walking along a branch to the fruits, hopefully not too high up in the crown. It starts feeding and seems to take no notice of the lamp and of the flash lights. I saw it again the following night, again at 11pm, but much higher in the tree and nearly out of sight. I never saw it gliding.

Pygmy flying squirrel, *Hylopetes* sp. or *Petinomys* sp.

Medway (1969) does not mention any flying squirrel from Langkawi. In 2008, we saw very rapidly this small flying squirrel on the evening of 31 January in Berjaya garden and in better conditions on the 07 February, at the same place. This time, the squirrel landed on a tree trunk

close to us before rushing to the top on the other side of the tree. Rather better seen in 2014, always late at night, on the 18 and 19 March, around 11pm. A few very short sights in Andaman hotel garden on other evenings. They are dark-grey above, creamy-white below. very swift and do look like the one on the picture in Zimmerer (2004). They really don't like the beam light and run along the branches of the large tree with ripe fruits when spotted. They also jump and glide between the branches. Beautiful show but difficult to follow. On March 19 they climb to the top of the tree and glide to the forest. That same evening I saw an other one in a bastard almond tree at the North end of the hotel, only 2 meters above the ground. As soon as lighted, it hides rapidly on the other side of the trunk and I am unable to find it again. It is around midnight

Muridae

Polynesian rat or little Burmese rat, *Rattus exulans*, Tikus rumah kecil.

The small rat seen rapidly in the beam of the torch light at the foot of a tree in the evening of 03 February 2008 and by the wooden platform of the Malay restaurant around 7pm on 19 March 2014, twice in Andaman hotel garden, could belong to this species.

Carnivora

The mangrove tour in 2014 was specifically oriented towards the search of otters, as 2 species are present along Langkawi shores, Oriental small-clawed otter, *Aonyx cinerea*, and Hairy-nosed otter, *Lutra sumatrana*, but we did not see any.

Canidae

Stray dog, *Canis familiaris*, Dingo, Anjing

We saw different times stray (?) dogs along the roads. Are they semi-wild stray dogs ? They don't seem to be present around Andaman hotel. The owners of Bon Ton restaurant collect stray dogs, take care of them and look for new owners.

Felidae

Apparently, 3 wild cats could be present on the island, Marbled cat, *Pardofelis marmorata*, Fishing cat, *Prionailurus viverrinus* and Clouded leopard, *Neofelis nebulosa*. Their status should be investigated, especially in the case of the Clouded leopard. Zimmerer (2004) also mentions Leopard cat, *Prionailurus bengalensis*. All this should be confirmed.

Stray cat, *Felis catus*.

Domestic cat is present nearly everywhere, including in some hotel gardens. The consequences for the local fauna should be investigated. Many of these animals have a short, truncated tail. They seem to be absent around the Andaman. The owners of Bon Ton restaurant collect stray cats, take care of them and look for new owners.

Artiodactyla

Suidae

Wild boar, *Sus scrofa jubatulus*, Babi hutan.

Only seen in 2014, first tracks in the sand at low tide just in front of the hotel, large feet (adults) and small feet (piglets). Then, on the morning of March 19, around 7am, one adult and 5 or 6 young animals, when it is still dark, are seen running along the beach to the North. No observation the 2 following mornings. Three adult seen on March 21, in mid-morning. They are by the small road going up to the main road, between the two hotels, Andaman and Datai. This morning is very damp and humid. As I am coming from downhill, the animals do not seem to notice me and I can walk closer on the middle of the road before they run away in the forest.

Tragulidae

A mouse-deer as already been observed just behind the Andaman hotel. The place is a small opening, covered with grass and quite humid, located between the hotel and the forest. We visited the place every day and nearly every evening at around 7pm and again around 9 or 10pm, without any observation. Once we may have heard a small mammal walking in the grasses but saw nothing. Two different mouse-deer species are mentioned from Langkawi by Medway (1969), the Lesser mouse-deer, *Tragulus javanicus*, today *T. kanchil*, Pelandok, Kanchil, and the Large mouse-deer, *T. napu*, Napoh.

Bovidae

Water buffalo, *Bubalus bubalis*, Kerbau.

Domestic water buffalo is common on the island, often seen surrounded by egrets.

IV – Birds

Identifications are following Eve & Guigue (1995), Strange (2001 & 2002), Zimmerer (2004) and Robson (2007). I tried to make pictures of the birds I saw to help identification.

Ciconiiformes

Little egret, *Egretta garzetta*. Wetlands of Langkawi.

Pacific reef egret, *Egretta sacra*. A single observation on the beach in front of Lanai hotel in 2008. Dark morph.

Cattle egret, *Bubulcus ibis*. By zebus and buffaloes. Some in breeding colours in 2008.

Chinese pond heron, *Ardeola bacchus*. Wetlands, rice-fields. Common.

Little heron, *Butorides striatus*. Close to Lanai hotel, adult and juvenile, shy, in 2008, in the mangrove, by the Andaman and in front of the Bon Ton in 2014.

Yellow bittern, *Ixobrychus sinensis*. One bird seen in 2014 in front of the Bon Ton.

Anseriformes

Lesser whistling duck, *Dendrocygna javanica*. In 2008, about 30 birds are permanently on the pond behind the Lanai. During the day, usually split in 3 or 4 groups, but all together in a single flock for the night. In 2014, a lonely bird seen in front of the Bon Ton on 18 March afternoon.

Accipitriformes

Brahminy kite, *Haliastur indus*. Common over Langkawi. Seen at Pulau Payar, 01 February 2008. Many birds at the mangrove feeding place in 2008. Many flying juveniles seen during the mangrove tour in 2014.

White-bellied sea-eagle, *Haliaeetus leucogaster*. Common over Langkawi. Seen at Pulau Payar, 01 February 2008. Many birds at the mangrove feeding place in 2008.

Crested goshawk, *Accipiter trivirgatus* ? Maybe the small hawk seen in the forest behind the Lanai hotel, around 5pm, 08 February 2008. I did not see the crest but noticed 3 black lines under the throat, one in the middle and the other two on both sides. Utters weak painful notes in a raw.

Changeable hawk eagle, *Spizaetus cirrhatus* ? Maybe this species. One individual seen 18 March 2014 soaring over the hotel. Seems to be mobbed by 2 Brahminy kites, looking smaller.

Gruiformes

White-breasted waterhen, *Amaurornis phoenicurus*. Present on the Lanai pond and one bird seen during the mangrove tour in 2008. Seen again in front of the Bon Ton, 18 March 2014.

Watercock, *Gallicrex cinerea*. Seen in front of the Bon Ton, 18 March 2014. One adult and one juvenile but do not seem to be together.

Purple swamphen, *Porphyrio porphyrio*. Seen in front of the Bon Ton, 18 March 2014. One adult. The watercock juvenile seems to be following this purple swamphen adult.

Common moorhen, *Gallinula chloropus*. Seen in front of the Bon Ton, 18 March 2014.

White-browed crane, *Porzana cinerea*. One bird is foraging on the water lilies in full view, 18 March 2014, on the pond in front of the Bon Ton.

Charadriiformes

Common sandpiper, *Actitis hypoleucos*. Different observations along Langkawi shores and in the mangrove, in 2008 and in 2014.

Common ringed plover, *Charadrius hiaticula*. Seen in 2008 by the mouth of the small creek just to the North of Lanai, 06 February afternoon and 07 February morning.

Red-wattled lapwing, *Vanellus indicus*. In 2008, a pair is resident in the shade of a tree on the lawn close to the Lanai pond. Calling when coming by but does not fly away each time. Seen again in 2014, a single bird one morning flying over the small opening just behind the Andaman and a few birds in a buffalo pasture during the bird tour.

A flight of terns on the way to and on the way back, Pulau Payar cruise, 01 February 2008, following fishing boats. No identification.

Columbiformes

Rock pigeon, *Columba livia*. Seen in Langkawi.

Spotted dove, *Streptopelia chinensis*. Seen in Langkawi.

Peaceful dove, *Geopelia striata*. Seen in 2008, not in 2014.

Thick-billed green pigeon, *Treron curvirostris*. Male and female seen in the garden of Andaman hotel on both trips. A male, seen resting, 04 February 2008 at 9am, is still at the same place at 2pm. Seen again in 2014, different birds, in and around Andaman garden.

Pied imperial pigeon, *Ducula bicolor*. Two observations at Pulau Payar, 01 and 06 February 2008. Quite shy.

Cuculiformes

A small cuckoo seen by the Lanai pond in 2008. Dark-grey with a red eyering. Identification ?

Asian emerald cuckoo, *Chrysococcyx maculatus* ? Another cuckoo seen from a distance, 20 March 2014, around 6pm, behind Andaman hotel. Bronze above, dark and striped throat, under-parts white with black strips. Identification ?

Lesser coucal, *Centropus bengalensis*. A few rapid observations around Lanai pond in 2008. Or Greater coucal, *C. sinensis* ?

Apodiformes

Edible-nest swiftlet, *Collocalia fuciphaga*. Identification of flying swiftlets is far from easy. A « swarm » above to road to Gunung Raya in 2008. Seen again in 2014 but no more confirmation for their identification.

House swift, *Apus affinis*. Regular observation above Langkawi in 2008.

Maybe another species but bad observation, high over Pulau Payar in 2008.

Coraciiformes

Dollarbird, *Eurystomus orientalis*. Able of spectacular flight abilities. One observation along the West coast and one on the way to Gunung Raya in 2008. Seen again in 2014, at the Andaman and by the jetty where we saw the brown-winged kingfishers.

Brown-winged kingfisher, *Halcyon amauroptera* or *Pelargopsis amauropterus*. First observation 17 March 2014 during the mangrove tour. Seen again, 2 perching birds, on the 18 March evening, close to the jetty. In Malaysia are said to be present only in Langkawi.

Common kingfisher, *Alcedo atthis*. A single observation during the 2014 mangrove tour.

White-throated kingfisher, *Halcyon smyrnensis*. Seen in 2008 above the Lanai pond and by the sea, a little to the North, by the mouth of a small creek.

Collared kingfisher, *Todiramphus chloris*. Two birds seen in 2008 a little to the North of the Lanai, by the mouth of a small creek. Standing on wires, they land to catch small preys on the sand. Common around the Andaman hotel in 2014. Frequent calls.

Blue-tailed bee-eater, *Merops philippinus*. Andaman garden and along the road to Gunung Raya in 2008.

Chesnut-headed bee-eater, *Merops leschenaulti*. A small group by the Lanai pond in 2008. Standing on a tree or on grasses, very close to the ground. Landing on the ground and digging with bill and legs. Seen again in front of the Bon Ton, 18 March 2014. Seen also in the casuarinas South of the Andaman building.

Bucerotiformes

Great hornbill, *Buceros bicornis*. An observation at the beginning of the road up to Gunung Raya in 2008. Seen again flying over the Andaman hotel and the forest around in 2014. The flight is noisy. Again along the road to Gunung Raya in 2014. The guide shows us an occupied nest. The tip of the female's bill is visible through the slit. However, the male, seen and heard at the top of a high tree near by, does not come to feed her. It is around 7pm.

Wreathed hornbill, *Aceros undulatus*. Different observations in flight above the forest in 2008, road to Gunung Raya. The flight is noisy.

Oriental pied hornbill, *Anthracoceros albirostris*. Common, observed in nearly all habitats of the island, including gardens, in 2008 and in 2014. Not shy as the two others. One 2014 morning on the beach, a bird lands on rocks at low tide, close to a group of long-tailed macaques.

Piciformes

Laced woodpecker, *Picus vittatus*. A male seen in a cachew-nut tree by the Lanai pond.

Greater flameback, *Chrysocolaptes lucidus*. A pair seen during the mangrove tour, 17 March 2014.

Great slaty woodpecker, *Mulleripicus pulverulentus*. Heard, 18 March 2014 afternoon, when walking along the road to Gunung Raya, during the bird tour and before going back to the great hornbill nest.

Passeriformes

Asian fairy bluebird, *Irena puella*. Andaman garden in 2008 and in 2014. Move around a lot, by pair or in small parties. A very beautiful bird. Seen eating small fruits.

Large-billed crow, *Corvus macrorhynchos*. Quite shy or not very common. I was unable to watch any through the binoculars in 2008. Not very different in 2014. Three of them seen flying over the Andaman.

Black-naped oriole, *Oriolus chinensis*. Common on the island. In the trees of the Andaman. During the bird tour, 18 March 2014, close to where we saw the buffaloes, a flying young is still fed by an adult. Open landscape with a few trees.

Ashy drongo, *Dicrurus leucophaeus*. Maybe the black drongo with the fork tail seen the morning, 17 March, when arriving at Jetty Kilim.

Greater racket-tailed drongo, *Dicrurus paradiseus*. Seen in the forest behind Lanai hotel and in Andaman garden in 2008. Nice observations in 2014 around Andaman hotel. Still active

quire late in the evening, after 7.30pm. I saw a bird catching and eating a large green grasshopper spotted in a tree in 2014.

Blue whistling thrush, *Myiophonus caeruleus*. A curious observation in the open lobby of Andaman hotel in 2008. A large dark-blue thrush, with small white spots, a yellow bill and dark legs, flies in. It opens regularly its tail during a few seconds. The bird perches on the furniture then fly up to the ceiling. That's it ! No observation in 2014 but we saw an old nest in the empty room of the bat cave, built on a stalactite. This bird is said to nest in dark places. Common myna, *Acridotheres tristis*. Common on Langkawi in inhabited and cultivated areas. Not seen at the Andaman hotel or just around.

Hill myna, *Gracula religiosa*. A pair seen when driving up Gunung Raya, 08 February 2008. Another pair seen nearly at the same place in 2014. A pair is present in one of the trees of Andaman hotel garden. There is a large hole in this tree and the birds are quite often around even they are not nesting.

A swallow seen flying from over the higher cable car station in 2008. Does not seem to have red at all, or a long tail. Different from the other two ?

Barn swallow, *Hirundo rustica*. A few observations in 2008.

Pacific swallow, *Hirundo tahitica*. Quite common on both occasions. Seems sometimes to hunt like a flycatcher. It perches, scans the sky and takes off just to catch a prey and then lands again. A whole colony is nesting under the roof of Jetty Kilim, 17 March 2014. One nest above the bar, Andaman hotel, in 2014.

Black-headed bulbul, *Pycnonotus atriceps*. Andaman garden and around, both times.

Yellow-vented bulbul, *Pycnonotus goiavier*. Common on Langkawi but not in forested areas. Seen around the Lanai in 2008, not around the Andaman in 2014.

Red-eyed bulbul, *Pycnonotus brunneus*. Quite common around the Andaman in 2014, not noticed in 2008. Pick up small fruits, sometimes by hanging to them with its bill.

Buff-vented bulbul, *Iole olivacea*. Plain grey bird seen at the Andaman in 2008. Pictures. The top of the head is rather brown, dark-grey on the back, light-grey below with some yellow. Pink leg, dark-grey bill, dark eye. All the pictures, in 2008 and 2014, are to be checked to try to identify these two bulbuls.

Common tailorbird, *Orthotomus sutorius*. Andaman garden in 2014 but quite uneasy to tell apart from the following.

Dark-necked tailorbird, *Orthotomus atrogularis*. Andaman garden in 2008. Seen again during the bird tour on the way up to Gunung Raya in 2014, or is it the previous one ? Pictures.

Yellow-browed warbler, *Phylloscopus inornatus*. Seen in the casuarinas trees to the South side of the Andaman hotel in 2014.

Stripped tit-babbler, *Macronous gularis*. Probably the bird seen in a casuarina tree at the end of South wing, Andaman hotel in 2014. Not seen in 2008.

Orange-bellied flowerpecker, *Dicaeum trigonostigma*. Andaman garden, feeding with sunbirds, from the same flowers in 2008. Beautiful bird. Probably the bird seen from the Andaman room, 04 February 2008 morning. A young is fed by an adult female. The bill is quite strong, orange for the young, dark for the adult. The lower back of the young, the only visible one, is yellow. Under parts are yellow in both birds, the back greyish, darker and looking uniform in the adult. Seen again in 2014 in scrubs along the small road between Andaman and Datai hotels, eating tiny fruits, close to main road. Able to hang by the bill to get the fruit. Could the dryness explain the lack of flowers or blossom ?

Purple-throated sunbird, *Nectarinia sperata*. Andaman garden. Many metallic glints, impressive. In the same tree than the orange-bellied flowerpecker in 2008. Seen close to the spa in 2014.

Crimson sunbird, *Aethopyga siparaja*. Andaman garden. Seen in 2008. Dark picture but the colour pattern looks in accordance. The colour of the back is not recognizable and the tail

looks rather short. Probably the species seen bathing in water drops on the leaves of a fishtail palm, *Caryota mitis*, 04 February 2008 morning. The bill is quite long and curved. The red goes rather low on the breast. Blue spot on the forehead. The bird is all dishevelled. Seen again in 2014, from the bar terrace, flying in the Andaman garden and along the small road between Andaman and Datai hotels.

Olive-backed sunbird, *Nectarinia jugularis*. Quite common in Langkawi. In the male, the blue patch on the chest is lined with red. In 2008, in front of Lanai hotel entrance, a pair built a hanging nest in a small cycas tree during our stay. The nest is occupied when we leave. Seen again in 2014, in Andaman garden.

Ruby-cheeked sunbird, *Anthreptes rhodolaema*. The bill is rather short for a sunbird. A pair seen, 19 March 2014, in one of the big trees just in front of Andaman hotel entrance. The male is chasing the female. Its back is dark and it waves the tail every time it is perched.

Grey wagtail, *Motacilla cinerea*,. Seen around the Lanai, up to the mouth of the small creek to the North. Also along the road to Gunung Raya. A bird without tail feathers seen by the Lanai hotel. Not seen in 2014.

Forest wagtail, *Dendronanthus indicus*. One observation in the hill just above Lanai in 2008. Walking on the path. Identification through the pictures.

Richard's pipit, *Anthus richardi*. On the lawns around the small creek just to the North of Lani hotel in 2008. By the buffaloes in 2014.

Eurasian tree sparrow, *Passer montanus*. Common in Langkawi but not in the forest. A single observation in 2014. Two birds in the boarding room of Langkawi airport, 21 March 2014 !

V - Reptiles

Identifications and systematics follow Cox *et al.* (1998), Zimmerer (2004), Grismer *et al.* (2006), Baker & Lim (2008) and Das (2010).

Squamata

Elapidae

Monocellate cobra, *Naja kaouthia*. Probably the snake seen in the drainage channel behind the Lanai, 05 February 2008 at around 3pm. The small snake seen, 06 February 2008 around 9pm at the same place belongs probably to this species too.

Agamidae

Green crested lizard, *Bronchocela cristatela*. Seen by the guide in the vegetation under the great hornbill nest, 18 March 2014. Picture.

Common gliding lizard, *Draco maculatus*. In 2008, different observations at the Andaman (orange patagium), one on an isolated coconut tree by the mouth of the small creek to the North of the Lanai (probably the same species) and one in the forest behind the Lanai (interaction between two animals, high in the trees, displaying a yellow throat flap with a blue spot). Seen again in 2014 at the Andaman, but no gliding nor colours exhibition observed.

Gekkonidae

Tockay, *Gekko gecko*. Heard at the Lanai. Seen at the Berjaya, 2 adults and a juvenile together, under the roof of a small wooden cabin, on both evenings, in 2008. A population must be present in the Andaman. Seen and heard every evenings and nights, in the buildings, on the walls, under the ceilings in 2014.

Flat-tailed gecko, *Cosymbotus platyurus*. On the walls of buildings. Probably one of the species seen on the walls of the Lanai in 2008. Pictures. Presence of a small webbing between toes. Quite shy. Seen again in 2014 at the Andaman.

Garnot's gecko, *Hemidactylus garnotii* ? Small gecko, same size as *H. frenatus*, on Lanai walls and on a tree trunk the evening in Andaman garden in 2008. Spotted, ringed tail, broad toes at the end, small web. Tail covered with small spines, clearly visible on the pictures.
Spiny-tailed house gecko, *Hemidactylus frenatus* ? Andaman walls in 2014.
Common four-clawed gecko, *Gehyra mutilata* ? Andaman walls in 2014.

Varanidae

Water monitor, *Varanus salvator*. The only monitor seen in 2008. All the animals identified belong to this species. One or two individuals, including a quite large, cross regularly the pond behind the Lanai. Seen also in the garden by the cable car lower station where they look quite confident. Seen also at the Andaman. A very short observation at Pulau Payar, probably this species. Seen again in 2014, at the Andaman and around, in the pond at the southern end of the hotel, during the mangrove tour (at least 3 individuals) and in the wetland in front of the Bon Ton.

South-East Asian, Bengal or Clouded monitor, *Varanus nebulosus*. A juvenile, with a nice yellow spotting, seen on two different days in the Andaman garden in 2014. Just under the palm tree where are the small fruit bats. Does not look too shy. Dig with energy in the dead leaves litter.

Scincidae

Many-lined sun skink, *Mabuya multifasciata*. Seen by the sea, close to the Lanai, and at Pulau Payar in 2008. Seen again in 2014 by the Andaman and along the forest path going to the Datai. White spots seen only on the flanks of some individuals.

Olive tree skink, *Dasia olivacea*. One individual seen in 2014 on the trunk of one of the trees in front of Andaman entrance. One of the hotel guests showed me a picture of a juvenile (held on his hand), probably this species. The picture was made here with a smartphone but I don't know when. Very spectacular. Golden head, flashy green tail, and ringed body, large dark rings separated by thin orange rings.

Chelonia

Red-eared slider, *Trachemys scripta*. A single observation of this exotic terrapin in the pond at the southern end of the hotel, 17 March 2014, around 2pm. Basking in the sun on a rock but dives as soon as I try to get closer. Shy. Not seen again.

A glimpse at a terrapin in 2008, in the pond by the lower cable car station. Too fast for me to identify it.

VI - Amphibians

Identifications and systematics follow Zimmerman (2004), Grismer *et al.* (2006) and Baker & Lim (2008).

Asian toad, *Bufo melanostictus*, now *Duttaphrynus melanostictus*. In 2008, one observation at the Lanai, by the motorbikes garage, close to the drainage channel of the pond. and another one at the Bon Ton, on the lawn between the restaurant and the pond. Pictures. In 2014, the single amphibian seen. A few males display and call, not every night, in a small artificial pool, between the main restaurant and the swimming pool.

Green ricefield frog, *Rana erythraea*, now *Hylarana erythraea*. A green frog with 2 light lateral lines seen at the Lanai in 2008. Moves towards the forest when lighted. Pictures.

Four-lined tree frog, Malayan tree frog, *Polypedates leucomystax*. A few observations at the Lanai in 2008. One climbing the small stone wall of the drainage channel, one resting on a large leaf. Pictures.

East Asian ornate chorus frog *Microhyla fissipes* ? A small frog, with some dark marks on the legs, lightly spotted on the back, sharp nose, calls with the throat. Males look dark brown with yellow lower flanks. Females are greyer. The calls are quite sharp. One axillary amplexus seen at the Lanai. Many of them in the lower drainage channel, quite active around 9pm. Seen on different evenings. Pictures. Could also be the small frog seen in the grass at the Bon Ton. To be checked. Only seen in 2008.

Malayan giant frog, *Limnonectes blythii* (= *Limnonectes macrognathus* ?),? A small frog with a large light line along the middle of the back. Seen at the Bon Ton in 2008. Picture. Identification to be checked.

VII Fishes

Many fishes seen in different occasions in 2008. At Pulan Payar, when diving and in the lagoon in front of the beach, during the mangrove tour, in the rivers or in the fish farm.

Needlefishes with a yellow nose tip are numerous at the jetty when we start the mangrove tour in 2008. During this same tour we spotted a few Blue-spotted mudskippers (*Boleophthalmus boddarti*) resting on mud banks at the foot of the mangrove trees. Not seen in 2014.

In 2014, we saw another species of mudskipper in the pond at the southern end of the Andaman hotel. Picture.

In the fish farm visited during the 2008 mangrove tour, different sea fish species are presented inside floating cages tied to a jetty. Archerfishes (*Toxotes jaculatrix*) are really interesting. They spit water up to 1 or 2 meters away to get small pieces of bread put for them on the jetty poles, above the water level. They jump very well. Also seen in Kuah harbour.

A few fishes in the coral nursery at the Andaman in 2014.

VIII - Invertebrates

The list could be quite long. Only those noticed or identified are here mentioned.

Horseshoe crab, *Carcinoscorpius rotundicauda*, belangka [*Euarthropodes*, *Cheliceriformes*, *Merostoma*, *Limulida* (= *Xiphosurida*)]

Observation and manipulation of a few captive individuals during the mangrove tour in 2008. A few invertebrates are held together inside a net, including horseshoe crabs and molluscs. The horseshoe crab is really strange.

Corals

A unique project concerning corals at the Andaman is worth mentioning. In 2004 the tsunami destroyed a large part of the house reef in the bay in front of the Andaman hotel. It is estimated that nearly 80% of the corals of this reef were eliminated. To try to help rebuilding this reef, an artificial reef has been built in a seawater pool, just behind the beach, with the water coming from the sea through pumping. The water depth is 1.20 meter at its maximum. The corals already inside look fine and thriving. Concrete blocks are prepared to help corals to find a hard support and to start rewilding the reef. It is called a coral nursery. They are already invertebrates and fishes in the pool, acting as a showroom of the project for visitors and hotel guests. It is running with private funding.

Insects

Lepidoptera : observation of many butterflies on both occasions. A few pictures made in 2014 of butterflies feeding on flowers and blossoms in the Andaman garden. A monography on Langkawi butterflies is expected in 2014.

Odonata : a few dragonflies seen over fresh water ponds. Different species seen on both occasions and a few pictures made.

Hymenoptera : small bees on a palm tree inflorescence and hunting-bees (*Ammophila sp.?*) digging their nest in the sand in front of the Lanai in 2008.

Orthoptera : large green and yellow locust flying around the Lanai and another one, all brown, seen during the first leak monkey observation in 2008. A green grasshopper seen on the path in the forest behind the Lanai, and another one seen in the bill of a drongo in the Andaman garden in 2014.

Coleoptera : a flower chafer (Cetoniidae) and a longhorn beetle (*Batocera sp.?*, Cerambycidae) seen on the walls of the Lanai one evening in 2008. The lengths of the antenna of the latter are really impressive. Elytra are rufous brown, quite light, with a few white spots and 2 red spots. A large beetle, looking like a female rhinoceros beetle (*Chalcosoma sp.?*, Lucanidae ?), seen in 2014 on a wall on the Andaman hotel one evening.

Homoptera : the exuvia of a cicada seen in the forest behind the Berjaya hotel in 2008. There calls are frequent and very powerful. Sometimes they sound like alarm calls. Adults seen in 2014 at night along the walls of the Andaman hotel. These cicadas are green.

Mantoptera : green praying mantis seen in 2014 at night along the walls of the Andaman hotel.

At night, the lights of the hotels are very attractive for many insects. The real impact of these lights is not known. They are used by insect eaters like, at least, bats and geckos or event pray mantis.

Hemiptera : Flower spike bugs (*Flatidae*) seen in the forest behind the Berjaya hotel in 2008. Really strange bugs ! All together under two green leaves. They move apart when we light them. It is possible to spot the head and the legs under the white dishevelled filaments.

Arachnida

Spiders seen in 2008. The big one with large cobwebs is the Golden webspider (*Nephelia maculata*). We saw also crab-spiders and wolf-spiders (Lycosidae) hunting on the ground. No observation in 2014.

Myriapodes

A Brown millipede seen in the Andaman garden in 2008.

IX - Conclusion

Wildlife is really interesting on the island. The different habitats present one a relatively small area increase the possibilities of investigation for biodiversity. The popular picture of the archipelago, including Pulau Langkawi, is that of tropical old rain forests. Travel agencies use this view to attract tourism. The way some recent resorts and hotels have been built is worth mentioning. For instance, four large constructions are present in the North-West of the island. They can be used as an example to put some light on the way the natural landscapes seem to be considered. This peninsula, still covered with apparently quite undisturbed rain forest, has been open for visitors by offering nice resorts surrounded by the forest. In the case of the Andaman, it is said that 70% of the forest have been kept during its construction. This figure does not explain every thing (quantity, quality, functioning ?). Certainly some biodiversity has been impacted and the constructions have divided the habitats in smaller areas. Biologists have been associated to the process. It could be interesting to know if a biodiversity monitoring has been running and since when, here as in the other places. This could help understanding the impact of the buildings (many small bungalows in one case, a huge single

building in another one and concrete paths in both cases) during a certain period of time, on wildlife.

We heard of a new very large project in 2014, located to the East of Andaman hotel, and associated with an international resort company. So, whatever the consequences, they will increase.

Certainly, through these buildings, the observation of many wildlife species is really facilitated and rewarding. Reptiles, birds, colugos, squirrels, monkeys are easy to see. In the same time, the rain forest walks which are offered at the desk of the hotels are done in fact within their own gardens, on concrete paths, which is different from real rain forests walks.

So, if this is certainly a positive way to consider wildlife conservation, bringing some results, it could also bring up some confusion between garden and nature, tame and wild, friend and foe. Protecting gardens should not be an argument not to preserve natural areas, true nature reserves, whatever happens on private lands opened or devoted to tourism. If not, it is easy to imagine how nature could be limited just to some selected "nice" species seen in gardens. The selection of what to protect and to keep could be done just following commercial or easy cohabitation criteria and also become accessible only to those happy enough to visit such private places. Biodiversity must go much further, in its composition and in its accessibility.

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