NATURE WATCH

Official Magazine of Nature Society (Singapore)

Volume 18 No 3 Jul-Sep 2010

Featuring:

Stuck on Spiders
Ecuador Birds
Sunda Slow Loris
Malaysian Hawk-Cuckoo and host
Know your Pulai II

NATURE SOCIETY
(SINGAPORE)

MICA (P) 072/07/2010

Message from Editor

June is a time of vacation in Singapore, and this year I took my little son to see his family in Denmark. On this picture we are walking on the beach at the west coast of Jutland facing the North Sea. Stunning, right? Well, these days it is, but when I used to frequent this exact same stretch of waterfront as a teenager, it was littered everywhere with glass bottles, plastic containers, driftwood, washed-up fishing nets and much else garbage and debris.

The clean up started in the 1960s. Later, when I worked on the oil installations in the North Sea during the 1970s, we were told that anyone who threw a coffee cup or a gum wrapper off the side would be run off the rig immediately. And guess what; nothing was chucked into the sea. An international campaign of zero tolerance regarding pollution from ships, platforms and visitors in the North Sea area, as well as regular clean-up operations along the shoreline, have transformed this place for the better.

Photo: Daniel Strange

Me and my son on the west coast of Jutland facing the North Sea in Denmark.

Maybe one day the beaches and mangroves around Singapore will look like this; completely litter-free. With strong institutions, enforcement and public co-operation it is possible.

Back home again, it was a pleasure putting together this issue of *Nature Watch*. Our multi-talented and productive contributor Leong Tzi Ming has set his eyes on the species of the spiders, and here he provides an exceptional visual presentation of this fascinating group of animals. We persuaded Fam Shun Deng to give us an update on his work studying the slow loris in Singapore. This article will bring to light new information about the taxonomic and conservational status of the population in Singapore and the wider region.

I was encouraged to show some of my pictures from a recent birding trip to the Neotropics. We decided to do a quick presentation and a poster of some lesser-known rainforest species from Ecuador. Our readers rarely see these, and who knows; some might want to go there and have a look for themselves.

As for South-east Asia, we now have abundant pictures available of its birds. Nevertheless, there is still plenty to discover and to document for the local wildlife photographers. Con Foley's wonderful series of the Malaysian Hawk-Cuckoo and its host proves this point. Tony O'Dempsey wraps up his series of his favorite plants with a feature on the local Pulai tree *Alstonia pneumatophora*.

Thank you for showing an interest in our natural world,

Morten Strange
Editor-in-chief
August 2010

Share with us

Your stories, articles, surveys, observations and brilliant photographs and send them to the address on page 1. If you are not sure, please send an e-mail to contact@nss.org.sg with a proposal and we will get back to you. Articles can be e-mailed across as a simple Word document (no funny fonts or colours or inserts, please) or saved on a CD and mailed with the illustrations as separate high res. files. Digital pictures must be in 300 dpi, absolutely sharp and as large as possible, jpeg compression is OK. Do NOT crop, brighten or sharpen, we will do all that as necessary. Thank you very much.

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ON THE COVER A hairy orange huntsman spider (*Heteropoda davidbowie*, family Sparassidae); it was named after the pop singer himself! No kidding. *Photo by Leong Tzi Ming*

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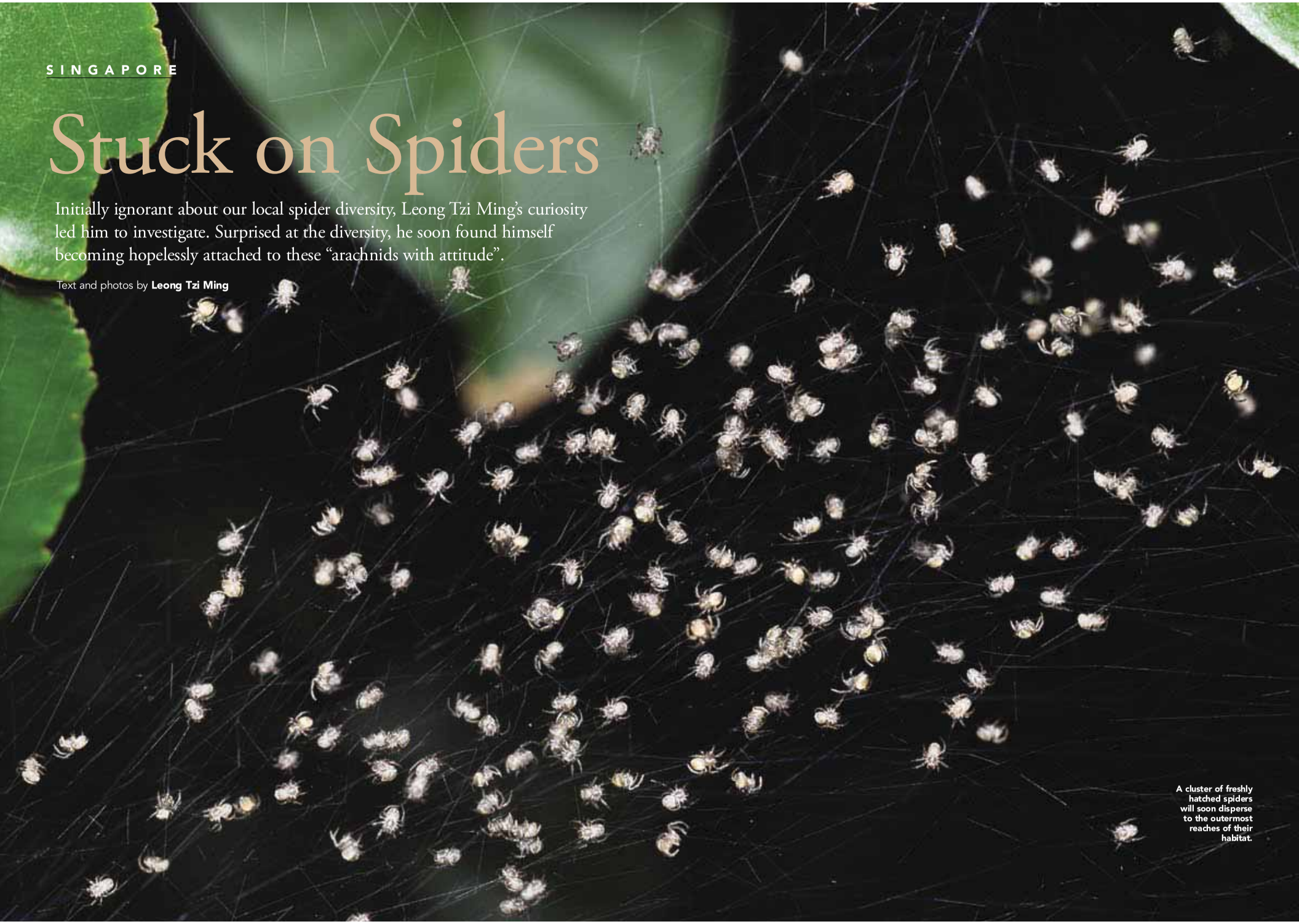
SINGAPORE

Stuck on Spiders

Initially ignorant about our local spider diversity, Leong Tzi Ming's curiosity led him to investigate. Surprised at the diversity, he soon found himself becoming hopelessly attached to these "arachnids with attitude".

Text and photos by **Leong Tzi Ming**



A cluster of freshly hatched spiders will soon disperse to the outermost reaches of their habitat.

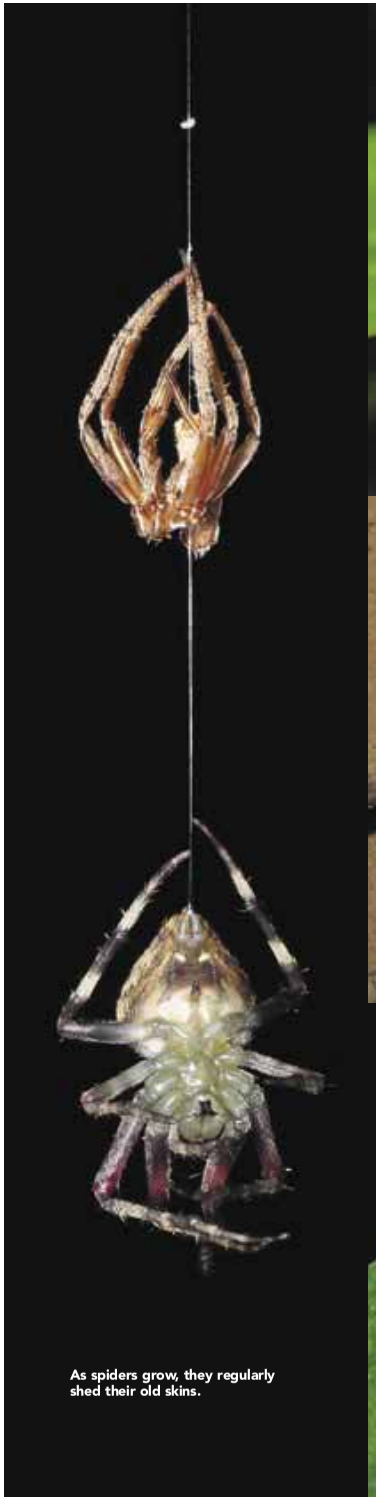
Spending childhood days catching "fighting spiders" and housing them individually in matchboxes may be a pastime that some of us recollect. However, I must admit that back then we never even bothered to find out what species they were. I only discovered many years later that they belonged to a very successful family of spiders (family Salticidae), also known as "jumping spiders" because of their ability to pounce upon unsuspecting prey.

In adulthood my eyes have been opened to these colourful and curious creatures that possess eight eyes, eight legs, plus an endless supply of silk readily produced by spinnerets at the tips of their abdomens. Unlike an insect, a spider's body consists of just two segments – a cephalothorax up front, connected to an abdomen behind. Multiple variations have revolved around this basic body plan, with many contemporary designs and colours far surpassing our wildest imagination. Their species-specific web architecture is also highly diverse - from the minimalist, single-strand "clothes line", to the convoluted, three-dimensional "circus tent".

Strategies for finding food are a testimony to spider ingenuity, as well as their insatiable appetites.

Apart from the passive, sit-and-wait mode, many spiders are highly pro-active, deliberately stalking unsuspecting prey. One unique group of spiders actually stands by with a rectangular web in its front limbs and throws this at any prey that crosses its path (*See page 1*). These are appropriately named Net-casting Spiders (family Deinopidae), which also have excellent night vision adapted for nocturnal predation (Leong & Foo, 2009). Some cunning spiders even employ a type of pheromone lure to attract unsuspecting moths towards themselves. Only too late does the moth realize that it has been deceived. For spiders, females are often perceived as the hungrier sex, since they require copious amounts of nutrients to manufacture fertile eggs.

Singapore is home to approximately 400 species of spiders, with the vast majority of the diversity possibly being confined to the remnant forests in the heart of the island (David Court, pers. comm., February 2010). At least 50 different species were first described as new to science based on specimens found here, which means that Singapore is the official type locality for these spiders. Of these, a few were actually named after our



As spiders grow, they regularly shed their old skins.

A healthy male *Oxyopes* species in search of a receptive female.

As darkness descends upon our forest, many nocturnal spiders begin to emerge, like this tarantula (Theraphosidae).

A fishing spider (Pisauridae) feels for aquatic prey with its sensitive legs on the water surface.

A spider that patriotic Singaporeans can be proud of, *Psechrus singaporensis*.

A Yellow Lacewing (Neuroptera) provides a colourful meal.

An adult katydid should satisfy the appetite of this female araneid spider for at least a week.

A crunchy cockroach will be delightful dinner for this huntsman spider.

In crab spiders (Thomisidae), their first two pairs of limbs often resemble pincers.

A female *Eurychoera* sp spider (family Pisauridae) guarding her egg sac.

Many jumping spiders resemble ants, such as this *Myrmarachne* species.

Small frogs can be vulnerable to larger spiders.

Parasitic fungus can sometimes consume spiders.

Singapore is home to approximately 400 species of spiders, with the vast majority of the diversity possibly being confined to the remnant forests in the heart of the island.

A *Miagrammopes* species carries its night snack in a neat packet.

A jumping spider with praying mantis prey.

country, such as *Psechrus singaporensis* (Psechridae), *Miagrammopes singaporensis* (Uloboridae), and *Singaporemma singularis* (Tetrablemmidae). Local spider research would certainly benefit from dedicated investigations into further verification of identities, detailed documentation of each species and determination of their distribution and ecological niches.

Fortunately for beginners like myself, a handy guidebook is available to help us learn the basics of spider biology and recognise some of the regularly encountered spiders in Singapore (Koh, 1989). This useful publication was authored by Joseph Koh, whose passion for spiders has resulted in the discovery of a new species, *Argiope mangal* (Araneidae). In recognition of his contributions to the field of arachnology, no less than five new spider species have been named after him. Joseph also has plans to give spider appreciation in this region a further boost by producing books on the spiders of Brunei, as well as on the broader South-east Asian region.

Some people have a genuine fear of spiders, known as "arachnophobia". However, this reaction is often based on the negative reputation that has been unjustly propagated by unsubstantiated rumours and exaggerated movies. The vast majority of Singapore's resident spiders are virtually harmless to humans, as well as being shy and elusive. They even benefit us by catching unwanted mosquitoes, flies, ants, termites and cockroaches. As long as we regard the wonderful spiders with the respect and admiration that they deserve, we will obtain a deeper understanding and appreciation of our eight-legged friends.

Our very own "Spiderman", Joseph Koh, employs his classic reverse-umbrella technique to search for spiders lurking in the bushes.

Acknowledgements *My sincere appreciations are owed to Joseph Koh and David Court for their encouraging and generous advice on spider identification and behaviour. I am grateful to them and to others for leading the way. Their published findings will always be here to stay.*

Dr. Leong Tzi Ming *is a zoologist working for the National Parks Board. He aspires to be an arachnologist someday, and is convinced that spider research will continue to pay high dividends.*

REFERENCES

Koh, J. K. H. (1989) *A Guide to the Common Singapore Spiders*. Singapore Science Centre, Singapore.

Leong, T. M. & S. K. Foo (2009) *An encounter with the Net-casting Spider, Deinopis species in Singapore* (Araneae: Deinopidae). Nature in Singapore, 2: 247–255.

A jade green spider can be such a sparkling gem.

Above: Crimson-rumped Toucanet *Aulacorhynchus haematopygus.*

Facing page: Giant Antpitta *Grallaria gigantera.*

Right: Fawn-breasted Brilliant male *Heliodoxa rubinoides* in the hummingbird family.

Ecuador

The best birdwatching in the Neotropics

Just as all able-bodied Muslims should make a trip to Mecca in their lifetime, so should all able-bodied nature lovers make a trip to the Neotropics in theirs. The natural world of the Neotropics (the zoogeographical region of South America) is just so different from anything you will be familiar with in Asia, Australasia or Africa.

Text and photos by **Morten Strange**

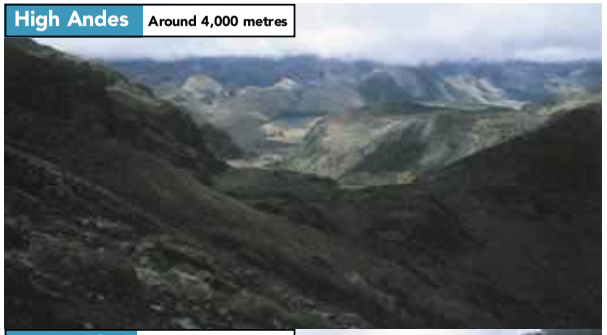
I made my pilgrimage in May 2008, and next to the money I spent on doctor fees to have my children delivered, this was the best money I have ever spent. As a funny coincidence, I did the trip together with a world-renowned fertility expert and gynaecologist. Professor Ng Soon Chye, who also happens to be a past President of NSS, a keen bird videographer and a much more pleasant people's person to travel with than myself.

To sample Neotropical bird life in a limited time span, our destination was a toss-up between Peru and Ecuador, and on advice from my globetrotting friend Iain Ewing we chose Ecuador. Iain knows what he is talking about - Ecuador is truly amazing. In spite of its relative small size (283,000 km^2), which is less than Malaysia (330,000 km^2), Ecuador has almost 1,600 different bird species, more than double those of Malaysia (even if you include the Borneo states). Ecuador is one of 17 countries identified by the United Nations as being megadiverse in terms of biological diversity.

Ecuador lies pretty much on the other side of the world from Singapore, flying there going east or west or even straight north is about the same distance. As the name indicates, the Equator runs through the country just north of the picturesque capital Quito, where you land. But what makes Ecuador special is the enormous mountain range of the Andes, which has snow-covered peaks reaching 6,310 metres in Ecuador, and which runs clear through the country.

From Quito, which itself is located at 2,800 metres, it is possible to watch birds one morning on the alpine *paramo* grasslands above the tree limit at 4,000 metres, and then in the afternoon pop down to either East Andes or West Andes at 2,200-1,500 metres, where there are great places to stay. The quality of the eco lodges, food and nature guides easily matches or surpasses what we are used to in South-east Asia. And the birding is truly astonishing. On each side of the Andes range, and at various altitudes, the bird composition will be different.

Ecuador is one of 17 countries identified by the United Nations as being megadiverse in terms of biological diversity.



On top of that, Ecuador is also part of the upper reaches of the great Amazon Basin. So from Quito you can drive east for about a day or transfer with a short domestic flight to excellent forest lodges at less than 200 metres above sea level along huge Amazon River tributaries. There you can live in style and sample the enthralling Amazon lowland region avifauna.

During the 12 full field days that Soon Chye and I had in Ecuador, I saw 172 different birds and photographed 139 of those. For the record, I only count species that I identify myself with really good views. But most amazingly, out of the 172, 168 were lifers; the four I knew already were widespread water birds. ALL the forest birds in the Neotropics are different from ours!

There are whole families that you will not find outside of the Americas, such as American vultures, guans, hummingbirds (there are 133 different hummers in Ecuador alone!), motmots, puffbirds, toucans, ovenbirds, woodcreepers, antpittas, tyrant flycatchers, cotingas, vireos, American warblers, cardinals, American blackbirds and a number of other families that I didn't see.

My favorites were the tanagers, family Thraupidae. They are a colourful, vocal and diverse group of Neotropical forest birds with representatives at all arboreal altitudes; I saw 32 species out of a total of 142 for the country.

Slate-throated Whitestart *Myioborus miniatus* in the American warblers family.

Morten Strange *is a long-time member of NSS and currently editor-in-chief of* Nature Watch.

MAIN REFERENCE

Ridgely, R.S. & P. Greenfield (2001) *The Birds of Ecuador*. Cornell University Press, New York.

Birds of the High Andes

■ BIRDS OF ECUADOR Photos by Morten Strange

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Andean Tit-Spinetail
Leptasthenura andicola

Bar-winged Cinclodes
Cinclodes fuscus

Black-winged Ground-Dove
Metriopelia melanoptera

Carunculated Caracara
Phalcoboenus carunculatus

Giant Hummingbird
Patagona gigas

Glossy Flowerpiercer
Diglossa lafresnayii

Great Horned Owl
Bubo virginianus

Great Thrush male
Turdus fuscater

Paramo Ground-Tyrant
Muscisaxicola alpina

Plumbeous Sierra-Finch male
Phrygilus unicolor

Rufous-collared Sparrow
Zonotrichia capensis

Stout-billed Cinclodes
Cinclodes excelsior

Birds of the West Andes

■ Birds of Ecuador Photos by Morten Strange

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Booted Racket-tail male
Ocreatus underwoodii

Brown-capped Vireo
Vireo leucophrys

Golden Tanager
Tangara arthus

Golden-headed Quetzal male
Pharomachrus auriceps

Golden-naped Tanager
Tangara ruficervix

Green-crowned Woodnymph male
Thalurania fannyi

Palm Tanager
Thraupis palmarum

Purple-throated Woodstar male
Calliphlox mitchellii

Red-billed Parrot
Pionus sordidus

Rufous-tailed Hummingbird male
Amazilia tzacatl

Silver-throated Tanager
Tangara icterocephala

Violet-tailed Sylph male
Aglaiocercus coelestis

Birds of the East Andes

■ Birds of Ecuador Photos by Morten Strange

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Masked Trogon female
Trogon personatus

Black-and-white Owl
Strix nigrolineata

Blue-backed Conebill
Conirostrum sitticolor

Golden-crowned Flycatcher
Myiodynastes chrysocephalus

Inca Jay
Cyanocorax yncas

Masked Flowerpiercer
Diglossopis cyanea

Montane Woodcreeper
Lepidocolaptes lacrymiger

Pearled Treerunner
Margarornis squamiger

Spectacled Whitestart
Myioborus melanocephalus

Subtropical Cacique
Cacicus uropygialis

Tourmaline Sunangel male
Heliangelus exortis

Turquoise Jay
Cyanolyca turcosa

Birds of the Amazon

■ Birds of Ecuador Photos by Morten Strange

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Amazonian Violaceous Trogon
Trogon violaceous

Gilded Barbet male
Capito auratus

Golden-collared Toucanet female
Selenidera reinwardtii

Hoatzin
Opisthocomus hoazin

Ivory-billed Aracari
Pteoglossus azara

Lineated Woodpecker pair
Dryocopus lineatus

Little Cuckoo
Piaya minuta

Many-banded Aracari
Pteroglossus pluricinctus

Purple-throted Fruitcrow male
Querula purpurata

Rufous-bellied Euphonia male
Euphonia rufiventris

White-fronted Nunbird
Monasa morphoeus

White-lored Euphonia male
Euphonia chrysopasta

Photo: Nick Baker

N. coucang from Panti Forest Reserve, Malaysia.

Sunda Slow Loris

Slowly getting to know our nocturnal primate

Fam Shun Deng studies this unique and shy forest animal in Singapore, and he tries to establish where it is coming from and how it is doing.

Slow lorises are mammals in the order Primates. They have some physical characteristics that make them easy to distinguish from other mammals. They have a facial mask, and a dorsal stripe, which may be used to differentiate between species. Sunda Slow Loris *Nycticebus coucang* individuals are in general brown or reddish, depending on where they come from (Groves, 2001). The head forks that make up the facial mask may or may not be very distinct. They also have noses that are pink and/or grey, and there is a patch of white fur between the eyes and the small, furry ears. Their eyes are large, round, positioned forward and very close together, and they have a reflective layer behind the retina (Ankel-Simons, 2000). These ocular adaptations help the nocturnal slow loris see in the night and under low light conditions.

Among the primates, slow lorises are thought to possess more "primitive" adaptations (Bearder, 1999), such as nocturnality, the ability to produce their own vitamin C, wet noses, and lower brain to body ratio. They are also the world's only venomous primate genus. The name

"loris" is believed to have come from the Dutch word "loeres", which means "slow-witted", or "sluggish".

The slow lorises possess a toothcomb, a specialized forward-pointing dental apparatus. The compression of the teeth in the toothcomb results in the formation of very fine channels. This then allows capillary action to occur, which aids in venom delivery when the animals bite aggressors in self-defence (Alterman, 1995). In humans, anaphylactic shock as a result of slow loris venom has been reported.

Little effective work has been done on the diet of slow lorises. Although many studies have been conducted over the years, there is much difference in the results. It is currently believed that lorises have a mainly insectivorous but highly diverse and variable diet, supplemented by plant matter (fruits, shoots, nectar, sap and gum), small invertebrates (like small birds and lizards) and birds' eggs (Nekaris and Bearder, 2007). Hence, lorises should be considered omnivores.

Some taxonomy

The taxonomy of slow lorises has been varied, with various events of splitting (up to 11 species at one time) to lumping (down to just one). Slow lorises are members of the loris family Loridae. There are currently five recognised slow loris species in the genus *Nycticebus* (Nekaris and Nijman, 2007; Chen et al., 2006), with *N. coucang* being the species that is found in the Sunda subregion including Singapore. *N. bengalensis* (Bengal Slow Loris) is found from the Isthmus of Kra and into southern China, and from Bengal and into Indochina, where it is, in some areas, sympatric with *N. pygmaeus* (Pygmy Slow Loris) (Nekaris and Bearder, 2007; Brandon-Jones et al., 2004) and *N. coucang* (Lekagul and McNeely, 1998). *N. menagensis* (Bornean Slow Loris) is from Borneo and Tawi-tawi Island (Timm and Birney, 1992). *N. javanicus* (Javan Slow Loris) is endemic to Java (Nekaris and Bearder, 2007).

Nocturnal animal taxa with limited ranges like tarsiers and bats are often cryptic, meaning that individuals may look alike but in actuality are different species or subspecies. It is likely that the same is also applicable to slow lorises. Currently, research on facial patterns, colour and coat densities have suggested that *N. coucang* in Sumatra may consist of at least two different subspecies (Nekaris and Jaffe, 2007).

More work is being carried out to elucidate differences in other parts of the range of the species. Nevertheless, slow loris researchers have always been able to tell the origins of photographs of adult slow lorises purely by sight, so there definitely are some subtle differences among populations.

The Slow Loris

Photo: Vilma Da'Rozario

***N. coucang* from Panti Forest Reserve, Malaysia.**

Common Names: Sunda Slow Loris, Greater Slow Loris, Common Slow Loris

Scientific Name: *Nycticebus coucang* (Boddaert, 1795)

Average Head-Body Length: 270mm

Weight: 480-710g

Habitats: Tropical wet, broadleaved, evergreen forest; Freshwater swamp forest; Heath forest; Cultivated land / plantations*

Secondary forest*

Distribution in Singapore: Central Catchment Nature Reserve; Pulau Tekong

Conservation Status in Singapore: Critically Endangered

Conservation Status globally: Vulnerable

** Only where there is sufficient canopy continuity and arboreal corridors*

Photo: Manoon Pluaungnoen

An adult *N. bengalensis* in Acacia plantation in Thailand.

Photo: Carly Starr

Pygmy Slow Loris *N. pygmaeus* from Cambodia.

Photo: Anna Nekaris

***N. coucang* from Aceh Sumatra.**

Status in Singapore

Slow lorises from Singapore have always been the great big gap in our knowledge of the species. Have they existed here historically? Are they different from the Peninsular Malaysian and Sumatran lorises? Harrison (1996) thought they were never here in the wild, just as pets, while Medway (1983) thought they were extinct.

Photos of lorises from Singapore have always been hyper-variable, some obviously Indonesian, some hybrids and some just inexplicable. Singapore's location and popularity as a shipping centre for much of the world's cargo means that it is difficult to track shipments and transhipments.

So trafficked lorises destined for other markets could be siphoned out for the local market. Lorises may look cute, but they make for really boring pets. They are always asleep in the day, when the owner is awake! So when unwanted pets are subsequently released they might end up in our nature reserves. And when nature lovers photograph them, they do make for a very confusing mosaic indeed.

So is there an indigenous Singapore slow loris? If so, how many are there, 100 or 150 maybe? Efforts are underway to build on the study of lorises by the author in 2007-2008 to try and shed more light on the questions. Given the number of questions, and the lack of loris specific surveys, perhaps the Sunda Slow Loris in Singapore should be classified as "data deficient" (rather than "critically endangered", *see box*).

Photo: Nick Baker

***N. coucang* from Panti Forest Reserve, Malaysia licking the sap of the Bat Laurel *Prunus polystachyus*.**

Ecology

In the past, slow lorises were believed to be solitary animals. However, radio-collaring and other field studies have found them to be more social (Wiens, 2002). Communication with other lorises occurs by scent-marking, vocalizations (e.g. whistling and chittering), and touch (grooming and physical aggression). The ranges of lorises also overlap, usually one male partially or completely overlapping the range of two or more females. Lorises are also known to sleep with conspecifics - quite commonly, a male with a female and her infants (Wiens and Zitzmann, 2003).

Slow lorises display a peculiar behavioural trait known as infant-parking. Infant or juvenile lorises typically cling onto their mother during locomotion until they are about as large as her. Until then, mothers will transport their offspring to a location near a foraging site, where they will then be left on their own (hence, parked) until foraging for the night is over. Before leaving the juveniles, mothers will groom them, spreading toxin over their bodies to deter would-be predators (Alterman, 1995). As the young lorises grow older, they may start exploring their "parking areas", but will still not move far away.

Being exclusively nocturnal, lorises spend the day asleep. As they do not make nests, lorises sleep in tree crevices or tree holes that are generally well hidden. Their choice of sleeping sites is important, as they may be predated upon while asleep. Even though they groom themselves and their young with toxic saliva, there have still been reports of slow lorises becoming prey in their sleep by pythons (Wiens and Zitzmann, 1999) and orang-utans (yes, even orang-utans eat meat too!) (Utami and Van Hooff, 1999). When asleep lorises curl up into a ball with their heads tucked between their thighs; but when it becomes too warm for comfort, they may lie on their backs instead (Muller, 1975).

Threats

The Sunda Slow Loris is currently regarded by the IUCN as vulnerable to global extinction. Slow lorises of all taxa occur in very low densities, and

Help! There is a slow loris in my garden!

THERE have been reports from members of the public of lorises mysteriously appearing in their gardens or on windowsills. These evidently are pets, which have escaped. Whenever such cases are encountered, one should not try to pry the loris from its perch as this may cause it to bite. Please keep in mind that a loris tends to not want to let go after it has sunk its teeth into an aggressor, and its bite is venomous! One should call an agency that handles wildlife, and watch the animal while waiting for assistance. If the loris moves, follow it to make sure it can be safely captured. If it is indoors, and on the floor, offer it a broomstick as a comfort perch. A loris feels much less stressed when it has something to hold on to. Either place it in a large box safely with a comfort stick, or drape a large cloth over its head as lights stress it. Then wait for the authorities to arrive and notify the author as well.

This individual from the Central Catchment Nature Reserve in Singapore cannot be conclusively identified to species and might be a hybrid. Photo: Norman Lim

populations are declining. Major threats identified are collection for the pet trade, habitat clearing and hunting.(see iucnredlist.org for details). All *Nycticebus* species are also listed under CITES Appendix I; international trade in specimens of these species is illegal and permitted only in very exceptional circumstances (e.g. between zoos).

Slow lorises are not known to be agricultural pests, and their photophobia leads them to shun urban proximities. Hence killings of lorises by domestic animals or cars are virtually non-existent. The serious anthropogenic threats to slow lorises throughout South-east Asia stem very much from hunting for medicine, the pet trade, and loss of habitat. Even in the trade, mortality is high and ill treatment rampant. Lorises often have their toothcombs pulled out with pliers or cut with nail-clippers without anesthesia or disinfection. Many die from the infections that follow. They are also sometimes dyed and passed off as rare races or species, which greatly increase their prices. Other common causes of death as a direct result of trade include starvation and dehydration (as traders completely lack any understanding or appreciation of their natural diet), injuries caused by fighting in their cages (very often, many lorises are put together, and with other species of animals as well), or simply high stress levels leading to illnesses and refusal to feed.

In Singapore, lorises face another rather unique threat. While lorises from other range countries suffer depletion, Singapore appears to face a problem of the introduction of exotic lorises. Although little work has been done on Singapore lorises, and the occurrence of confiscations might have dropped over the years, it has not escaped the attention of primatologists that lorises photographed from Singapore seem to be morphologically hyper-variable, and completely lacking in the consistency of appearance seen in lorises from other localities in South-east Asia.

Also, the forests of Singapore are hemmed in by brightly lit roads and urban developments pushed very close to the forest edges. The military has also made use of the safety buffer afforded by the forests to build open firing ranges in some forested areas, while conducting maneuver training in others. Slow lorises are rather averse and sensitive to human disturbances. As yet, there is no evidence that the animals are affected by such activity in Singapore, but it would be prudent to study stress levels in Singapore lorises in comparison to lorises in other less disturbed patches elsewhere in the region.

Photo: Abrar Ahmed, TRAFFIC India

Bengal Slow Loris *N. bengalensis* for sale at Assam-Nagaland border, India.

Photo: Louis Ng

Dyed for sale as a pet in Thailand.

Photo: Porter Barron

Five slow lorises prepared for sale at a market in South-east Asia.

Interesting facts

- The slow lorises have more vertebrae in their spinal column than other primates, allowing them to twist almost 360 degrees when moving through dense canopy.
- The Indonesian name for the slow loris is "malu-malu", meaning "shy", as slow lorises have sometimes been observed to bury their heads in their hands when they feel threatened.
- The Indochinese have many myths of the slow lorises. One such belief dictates that a love potion can be made from their eyeballs.
- There is not a single specimen of the slow loris from Singapore Island. The Raffles Museum of Biodiversity Research has one that is from Pulau Tekong, and the British Museum of Natural History has another "inferred" to be from Singapore, but no definite locality has been given and is likely to be a purchased skin.
- In spite of being listed under CITES Appendix I, slow lorises are the most commonly traded primates in pet markets.
- When forests are felled, slow lorises do not try to escape, like other animals do. Instead they freeze, and hold on to the tree, and are then easily harvested in large numbers by loggers and animal traders.
- Lorises have a metabolic rate 40% lower than expected of animals of their size. This has been attributed to the need to neutralise the toxins from insects and plants parts before dietary energy can be utilised. This extremely low metabolic rate has allowed characteristics unusual for the tropical environment to develop in lorises, such as a very dense, woolly coat.

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Malaysian Hawk-Cuckoo and the White-rumped Shama

Text and photos by **Con Foley**

On the first day of July 2010 I was on the so-called Bunker Trail in Panti Forest Reserve, Johor, Malaysia. Just before 8:00 am I noticed a bird fly from tree to tree that gave me the overall impression of a large cuckoo. I was in the car at the time, so I drove to the forest edge and observed. The bird continued to move from branch to branch, until to my great fortune it settled on a relatively open perch. It stayed on this perch for an incredible twenty minutes giving me plenty of time to observe its behaviour.

One of the first things I noticed was the bird making a very soft call, and then within a few minutes a female White-rumped Shama *Copsychus malabaricus* flew in. As soon as the female arrived, the cuckoo started quivering its wings. Within moments it got fed.

The call was vaguely reminiscent of a Rufous-tailed Shama, a single note, sometimes ascending, sometimes descending, but much softer and more coarse. I would later hear the female White-rumped Shama also make a similar soft single note call, but cleaner and not as coarse as the cuckoo, nor as frequent.

Who was imitating whom I am not sure. You can hear the juvenile's call at a link provided at the end of this article. It repeated the call at one to two second intervals continuously. Over the period of twenty minutes the female shama flew in twice with food. Then the juvenile cuckoo successfully foraged for a small caterpillar by itself and flew off to another tree.

At this point I had to get out of the car to track the cuckoo into the forest. This was easy to do by listening to its continuous call. I was able to get close enough to obtain satisfactory sound recordings, but no further photos, as the cuckoo was high and obscured. I witnessed the male shama fly up to the cuckoo's perch, but whether with food or not I could not see. I stayed with the cuckoo for another forty minutes until it flew across the road and deeper into the forest.

As soon as the female arrived, the cuckoo started quivering its wings. Within moments it got fed.

I identified the juvenile cuckoo as a Malaysian Hawk-Cuckoo *Hierococcyx fugax*. It is treated in Wells (1999) as Hodgson's Hawk Cuckoo *Cuculus fugax* but this species was split in 2002 and two distinct species are now accepted to occur in Peninsular Malaysia, where *H. fugax* is the Sunda subregion resident taxon, and Hodgson's Hawk-Cuckoo (now *H. nisicolor*) is a migrant (MNS, 2005).

These cuckoos are all nest parasitic. Wells (1999) mentions an unconfirmed record of White-rumped Shama acting as a host, but to the best of my knowledge this is the first time it has been proven in images.

I returned to the Bunker Trail six days later and was very interested to hear the juvenile cuckoo still calling at the same location before 8:00 am. As the call was inside the forest I had to bash in and I was able to work my way close enough to see the female shama fly to the perch beside the cuckoo and feed him. Satisfied that all was well I left the family assuming the juvenile cuckoo would become independent shortly.

On the 10th of July and later on the 16th I was in Panti again, and on each visit the cuckoo was still calling and being attended to by the shama. During the later visits, the male White-rumped Shama would always be singing in the general area where the juvenile

cuckoo was located. So it was possible to just follow the shama's penetrating song until reaching the general area and then listen for the cuckoo's soft call.

So, on July 1st the cuckoo was able to forage successfully for food on his own, and yet there we were 16 days later, and he was still begging for food from his mom, and she was delivering. It struck me how bird life parallels human life!

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Video and sound of juvenile Malaysian Hawk Cuckoo http://vimeo.com/13023585.

***Con Foley** is an active nature photographer and bird enthusiast. A long-time resident of Singapore, he supports the NSS Bird Group during censuses and bird races, and is also the Past President of Nature Photographic Society (Singapore).*

Panti Forest Reserve

Panti Forest Reserve is filled with cuckoos, and in 2009 I photographed the Chestnut-winged Babbler *Stachyris erythroptera* feeding a Drongo Cuckoo *Surniculus lugubris*. Cuckoos are in general very secretive birds, maybe because they must know their territory intimately and know when to lay their egg.

White-rumped Shamas usually make their cup-shaped nests in the open top of a broken tree stump or in a dense clump of bamboo, where they could be easily parasitized by a hawk-cuckoo. Infrequently they will make their nest in an old woodpecker hole, as this photo shows, and I should think this type of nest would be safer from being parasitized.

The author hard at work on the so-called Bunker Trail.

Alstonia pneumatophora

Text and photos by **Tony O'Dempsey**

In the previous issue of *Nature Watch*, 18(2), I featured three of the six *Alstonia* (Pulai) species found in Singapore including *A. spatulata* which is a swamp specialist. For this edition I am featuring the other swamp specialist – *A. pneumatophora* – named after its ability to produce pneumatophore or knee roots. This Critically Endangered (in Singapore) species is so rare that all of the known examples of this tree in our Nature Reserves can be counted on one hand.

An *Alstonia pneumatophora* from the Nee Soon Forest. Notice the fluted buttresses.

The knee roots (pneuamtophore roots) from an *A. pneumatophora* inside the forest around Upper Pierce Reservoir.

This tree has two adaptations to survive in its preferred swampy habitat, the first is the enlarged fluted buttresses which provide stability, and the second is its ability to produce pneumatophores or aerial roots that promote gas exchange when the tree is growing in inundated circumstances. It is noted however, that the growth of pneumatophore roots is unlikely if the tree is growing on reasonably dry ground.

Presumably this species was more abundant prior to the creation of raw water reservoirs in the Central Catchment from the 1860s, and as a casual visitor to the Nature Reserves it is unlikely that you will encounter this beautiful tree today.

There is simply too little left of its preferred habitat of swampy ground near forest streams. Fortunately, there is one mature specimen growing in the Botanic Gardens.

Next time you are visiting the Gardens, do take a few minutes to appreciate this tree located on Lawn D very close to Swan Lake. I find its wide fluted buttress, straight trunk and symmetrical crown to be in proportions that are very pleasing to the eye.

The beautifully proportioned *A. pneumatophora* growing in the Singapore Botanic Gardens.

***A. pneumatophora* leaves grow in whorls of 5-6.**

The leaves of *A. pneumatophora* are very similar in shape to *A spatulata* (the other swamp dwelling Pulai, see *Nature Watch* 18(2):24). The distinguishing characteristic is that the leaves are not petilated (they have no stems) and they grow in whorls of 5-6, whereas *A. spatulata* typically have whorls of no more than 4 leaves.

Tony O'Dempsey is a long-standing supporter of the nature community in Singapore and chairman of the NSS Vertebrate Study Group. He also has an interest in the trees and plants of the region. With this article he has concluded his four-part series on his favorite Singapore plants, and we thank him for his contribution to *Nature Watch*.