

**Save
the
Pangolin**
our scaly anteater





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by Norman Lim T-Lon

Pangolins are mammals that belong to the order Pholidota



and its sole family, Manidae. These largely nocturnal creatures are mainly terrestrial in habit, but they also burrow and climb trees.

They are myrmecophagus, feeding only on ants and termites. They have a conical head with toothless jaws, a long sticky tongue to lick up ants and termites, and feet armed with powerful long claws for digging and breaking up ant nests or termite mounds.

The scales, unique to this group of mammals, are essentially compacted hair. They are composed of keratin, and offer excellent protection not only against predators, but also from the bites and stings of their prey insects.

When cornered with nowhere to escape, pangolins often curl up to protect their non-scaly underparts and heads. The infant pangolin is carried around by its mother, clinging to her back at the base of her tail.

Pangolins have existed for at least 45 million years.

Diversity and Natural History

[04]

In present day, eight species are recognised, four are distributed in Africa, and four are found in Asia. The four Asian species are:



Chinese Pangolin (*Manis pentadactyla*) - Has a relatively short tail (50 – 70% of head & body length), 16-19 scales along the edge of its tail and a prominent ear flap that is indistinct on other Asian species. It is the smallest of the Asian pangolins (up to 58 cm in total length). **Distribution:** East Asia in China south of the Yangtze River (including Hainan), Taiwan, northern India, northern Lao PDR, northern Myanmar, Nepal, far northern Thailand and northern Vietnam.



Indian Pangolin

(*Manis crassicaudata*)

- Has a longer tail (70 – 80% of head & body length), and the largest scales among the Asian species with 14-15 scales along the edge of its tail, and 11-13 scales over its midbody (more than 15 scales in other Asian species). **Distribution:** Indian subcontinent from Pakistan, throughout India, Sri Lanka, and possibly Bangladesh.

Philippine Pangolin

(*Manis culionensis*)

– Long tail (80 – 90% of head & body length) with more than 20 scales along the edge, and 19-21 scales over the back at the shoulder area. **Distribution:** Endemic to the Philippines, and restricted to Palawan.



Sunda Pangolin (*Manis javanica*) - Long tail (80 – 90% of head & body length) with more than 20 scales along the edge, and 15-18 scales over the back at the shoulder area. **Distribution:** Southeast Asia from Myanmar to Vietnam, south through Thailand, Malaysia and western Indonesia. (Photo of Sunda Pangolin in Singapore.)



The Sunda Pangolin

[06]

Manis javanica is distributed in Southeast Asia from southern Myanmar through Thailand, southern Lao PDR, southern Vietnam, Cambodia, down the Malay Peninsula and on the Sunda islands of Borneo, Sumatra and Java.

It is the only species found in Indonesia, Malaysia, Brunei Darussalam and Singapore. Adults weigh up to 12 kg, and grow up to 1.2 m, with males tending to be larger than females.



While some pangolin species are ground-dwelling, and others are arboreal, the Sunda Pangolin is quite versatile. It is adept at climbing trees, burrowing and even swimming. Not much is known about the biology of the Sunda Pangolin, but an ecological study (Lim & Ng, 2008)

on this species conducted in Singapore from 2005 to 2006 has shed some new light on this animal. The five individuals featured in the study were captured by hand and fitted with radio-transmitters.

This study found that three of the adult male pangolins spent an average of 67% of their foraging time feeding on ants and the remainder on termites. A total of 11 ant genera were recorded in the diet, the bulk of which consisted of *Polyrachis* spp. and *Anoplolepis gracilipes*.

The Sunda Pangolin

[07]



Norman Lim T-Lin

Kerengga ants at Bukit Timah Nature Reserve, Singapore.

That the Sunda Pangolin could be eating up to 200,000 worker ants (up to 10% of their body mass) in a day suggests that this mammal plays an important ecological role in influencing the populations of ants and termites.

As these insects form the dominant constituent of biomass in many terrestrial ecosystems, they have a profound influence on nutrient-recycling dynamics.

Therefore the Sunda Pangolin helps in maintaining the functional integrity of their environment through their interactions with ant and termite communities.



Norman Lim T-Lin

A Sunda Pangolin (*Manis javanica*) eating termites in Singapore.

The Sunda Pangolin

[08]

Despite the relatively small sample size, the study found that although the Sunda Pangolin prefers to live in forest, they are not confined to this habitat. They also forage in plantations and scrubland, and individuals have used man-made urban structures such as drains and buildings for daytime retreat.

However, female pangolins with young were always found in dens at the base of large trees, suggesting that mature forest is required during the reproductive phase and is critical for the long-term survival of the species.

Sunda Pangolin (*Manis javanica*) in Singapore



Norman Lim T. Eon

The infant pangolin is carried around by its mother, clinging to her back at the base of her tail.



Sunda Pangolin (*Manis javanica*) in Singapore.

When threatened, a pangolin curls into a ball, protecting its vulnerable underside.

Very little is known about Sunda Pangolin reproduction. The female usually gives birth to one young each time, but twins have been reported, and the period of maternal care is estimated to be between three to four months.

There are no records for the number of births per year, the gestation period and the specific habitat or diet requirements of the female during the reproductive phase.

The Sunda Pangolin is hunted for its meat. Not only is it eaten on a subsistence basis by native peoples, it is also commercially exported and sold as exotic meat in restaurants outside its native range. Its body parts, especially the scales, are used in Traditional Chinese Medicine. The processed scales are said to be effective in activating blood circulation, simulating lactation, dispersing swelling and expelling pus.

Photo by TRAFFIC Southeast Asia of label of TCM product made from pangolin scales.



Entire pangolins are also gutted and mounted for use as household ornaments.

The Sunda Pangolin faces severe hunting pressures. These animals are exceptionally vulnerable to over-exploitation, as they are easily caught and have a very slow reproduction rate.

Large-scale commercial harvesting has come about only in the past few decades, largely to supply increasing demand in China for its meat and scales which are used for tonics and traditional medicines.

Reliable statistics on the trade in Sunda Pangolin is very limited because trade in this species is illegal.

Countries closest to China have seen dramatic declines in the wild populations of pangolins. Pangolin populations in China and Indochina have been largely depleted, so traders are searching further, in Indonesia and Malaysia.

The trade chains are generally straight forward. Local people in rural areas are often aware of the value of pangolins and opportunistically harvest them. Middlemen visit villages on a regular basis or set up buying stations where people can bring pangolins to sell. These middlemen then sell to larger middlemen or to main dealers who then ship the pangolins off to the end markets.

Pangolins are smuggled across international borders by air, land and sea, through a number of key routes. Live pangolins are frequently hidden among other cargo or labeled as fish. While pangolins are usually shipped live, this becomes increasingly difficult as the sources become further from the markets.

In these cases, the animals are often slaughtered and frozen before shipping.

Scales are sometimes shipped separate from the meat. Declared as frozen fish, frozen pangolins are very often smuggled in large quantities.



Trade

[12]

The only official statistics of the trade in pangolin scales come from South Korea, with 7,067 kg imported from China, 1,850 kg from Indonesia, 1,000 kg from Malaysia and 1,026 kg from Vietnam in 1992 (Bräutigam et al., 1994).



Based on the conservative assumption that a single pangolin yields 0.5 kg of scales, this translates to around 14,000 Chinese Pangolins and 7,500 Sunda Pangolins in one year (TRAFFIC, 2002).

In Southeast Asia, seizures of illegal shipments of pangolin happen almost daily and are often reported in the media.

In July 2002, Thai officials confiscated 1,737 live pangolins believed to have been heading for China, Hong Kong or Taiwan.

In April 2004, Malaysian authorities uncovered 1,200 frozen pangolins supposedly bound for Vietnam.

In March 2008, about 24 tonnes of frozen pangolins from Indonesia were seized in Vietnam.

In July 2008, approximately 14 more tonnes of pangolins were seized by the police in Sumatra, Indonesia. Massive shipments from Indonesia are indicative of the large scale illegal trade in the pangolin and the conservation challenges ahead.



Despite all range states in Southeast Asia being Parties to CITES, illegal trade continues on a massive scale (Hogg, 2003; WAR, 2002; TRAFFIC, 2004), and is a serious threat to the survival of Asian pangolins.

Trade

[14]

Animals in the trade are transported without regard to their welfare. They are shipped without food or water, in cramped and unhygienic conditions.

Many individuals are heavily infested with parasites and bear traumatic wounds from snare traps and dog bites, abrasions, ocular ulceration and severe dermatitis. Some traders even force feed or inject fluids into the animals to increase their weight.

All pangolins in trade are obtained from the wild. Pangolins are notoriously difficult to maintain, and even harder to reproduce, in captivity.

This eliminates the option of captive breeding to ease the strong hunting pressure, and further supports the importance of in situ conservation of pangolins in their natural habitats. While there has been some success in keeping the Sunda Pangolin at Wildlife Reserves Singapore, and the Chinese Pangolin at Taipei Zoo, these are rare exceptions.



Apart from illegal harvesting and trade, the Sunda Pangolin also faces serious threats from habitat destruction and degradation in its native range. Forested land favoured by this animal in Indonesia and Malaysia is disappearing at an alarming rate of 1.20% per year, or 1,312,000 ha and 237,000 ha respectively (FAO, 2001).

The Sunda Pangolin is a wide-ranging animal. It frequently commutes between patches of wooded areas, and inevitably has to cross motorways. Many pangolins are knocked down by motor vehicles, and are either seriously injured or killed.

Based on records kept by the Raffles Museum of Biodiversity Research, 19 out of 51 pangolins recorded between 2001 and 2009 on Singapore mainland are victims of traffic accidents.

Most of the roadkill pangolins were found on roads along the periphery of the Central Nature Reserves.

Sunda Pangolin (*Manis javanica*)

This roadkill juvenile pangolin was found along Upper Thomson Road, Singapore.



In Asia, pangolins are protected by legislation. However, there is a lack of proactive enforcement. Seizures and prosecution by customs and wildlife authorities in individual countries almost always take place after tip-offs. Some animal rescue centres help to rehabilitate the confiscated animals.

All Asian pangolins are listed under Appendix II by the Convention of International Trade in Endangered Species of Wild Flora and Fauna (CITES) with 'zero quota' trade limits in most Asian countries.

Despite this protection status, large numbers of pangolins, particularly the Sunda Pangolin, have been smuggled across country borders at an alarming rate (Bräutigam et al., 1994). Given the lack of information on their current status and threats, CITES rejected the recommended transfer of all Asian pangolins from Appendix II to Appendix I at the 11th Meeting of the Conference of the Parties (CITES, 2000).

The defunct IUCN Pangolin Specialist Group acknowledged that virtually no information is available on the population levels of any of the Asian pangolins. This lack of data severely hampers conservation efforts and management. Nevertheless, the Chinese and Sunda Pangolins are classified as 'Endangered' (Duckworth et al., 2008), and the Indian and Philippine Pangolins are regarded as 'Near Threatened' (Batin & Widmann, 2008).

In Singapore, the Sunda Pangolin is legally protected under the Wild Animals and Birds Act (Chapter 351) and the Endangered Species (Import/ Export) Act 2006 by the Agri-Food and Veterinary Authority of Singapore.

In Vietnam, the Carnivore and Pangolin Conservation Program (CPCP), located in Cuc Phoung National Park, built a centre in 2006 to provide a viable alternative for the placement and rehabilitation of confiscated pangolins. The Wildlife Crime Unit of Education for Nature - Vietnam (ENV) focuses on combating the illegal trade in pangolins and other protected species in the country.

In 1995, Taiwanese researchers studied the Wang Bu Liu Xing 王不留行, or dried seeds of the cowherb (*Vaccaria segetalis*, family Caryophyllaceae) and found that it has curative properties similar to those allegedly associated with pangolin scales.

Having recommended this as a substitute for pangolin scales, these researchers have made a positive step in controlling the demand for pangolins.



A mother Sunda Pangolin sighted along Mandai Road, Singapore, staying by its dead juvenile.

The following are some organisations in Southeast Asia involved in the rescue, research and conservation of the Sunda Pangolin and its relatives:

CAMBODIA

Angkor Centre for Conservation of Biodiversity (ACCB)

Kbal Spean, Phnom Kulen National Park

P.O. Box 93054 Siem Reap, Cambodia

<http://www.accb-cambodia.org/>

Conservation International

P.O. Box 1356, Phnom Penh,

Cambodia

<http://www.conservation.org/>

The Cambodia's CITES Management Authority,

Ministry of Agriculture,

Forestry and Fisheries (MAFF)

Cambodia

<http://www.maff.gov.kh/eng/>

INDONESIA

Research Centre for Biology

Indonesia Institute for Sciences (LIPI)

Jl. Raya Cibinong Km. 46,

Cibinong 16911, Indonesia

<http://www.biology.lipi.go.id/>

LAO PDR

Forestry Department

Division of Forest Resource Conservation

Lao PDR

<http://www.maf.gov.la>

MALAYSIA

PERHILITAN

Department of Wildlife and National Parks,
Km 10, Jalan Cheras,
56100 Kuala Lumpur, Malaysia
<http://www.wildlife.gov.my/>

Forest Department Sarawak

Wisma Sumber Alam
Jalan Stadium Petra Jaya,
93660 Kuching, Sarawak, Malaysia
<http://www.forestry.sarawak.gov.my/>

Sabah Wildlife Department

5th Floor, B Block, Wisma MUIS
88100 Kota Kinabalu, Sabah, Malaysia
<http://www.sabah.gov.my/jhl/>

TRAFFIC Southeast Asia

Unit 9-3A, 3rd Floor, Jalan SS23/11,
Taman SEA, 47400 Petaling Jaya
Selangor, Malaysia
<http://www.traffic.org/southeast-asia/>

PHILIPPINES

Katala Foundation Inc,

Puerto Princesa City, Palawan, Philippines
<http://www.philippinecockatoo.org/>

Palawan Council for Sustainable Development (PCSD)

PCSD Bldg, Sports Complex Road, Sta. Monica Heights
Puerto Princesa City, Palawan, Philippines 5300
<http://www.pcsd.ph>

SINGAPORE

ACRES Wildlife Rescue Centre

91 Jalan Lekar
Singapore 698917
<http://www.acres.org.sg/>
hotline: +65 97837782

Agri-Food and Veterinary Authority

5 Maxwell Road, #02-03,
Tower Block, MND Complex
Singapore 069110
<http://www.ava.gov.sg/>

The Raffles Museum of Biodiversity Research

Department of Biological Sciences
S6 Science Drive 2, #03-01
Singapore 117600
<http://mbr.nus.edu.sg/>

National Parks Board

National Biodiversity Centre
1 Cluny Road, Singapore 259569
<http://www.nparks.gov.sg/>
Helpline: 1800 4717300

Wildlife Reserves Singapore

80 Mandai Lake Road,
Singapore 729826
<http://www.wrs.com.sg>

THAILAND

ASEAN-WEN Program Coordination Unit

Ground Flr, Department of National Parks (DNP)

Piroj Suvanakorn Building,

61 Phaholyothin Road, Lad Yao,

Chatuchak, Bangkok 10900, Thailand

<http://www.asean-wen.org/>

Division of Wildlife Fauna and Flora Protection

National Park, Wildlife and Plant

Conservation Department

61 Phahonyothin Road, Chatuchak,

Bangkok 10900 Thailand

<http://www.dnp.go.th>

Hotline: 1362

VIETNAM

Carnivore and Pangolin Conservation Program (CPCP)

Cuc Phuong National Park , Ninh Binh , Vietnam

PO BOX 179 , Hanoi GPO, Vietnam

email: asianpangolin@gmail.com

Education for Nature – Vietnam (ENV)

PO Box 222, No. 5, NIF1,

Ngõ 192, Thái Thịnh Street, Hanoi, Vietnam

<http://www.envietnam.org/>

Forest Protection Department of Vietnam

A3 Building, No. 2, Ngoc Ha Str.

Ba Dinh District,

Hanoi, Vietnam

<http://www.kiemlam.org.vn>

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A Pangolin's Plea

[23]

by
Leong Tzi Ming

My body's armed with scales just like an ancient dragon
My claws are as sharp and strong as any eagle's talon

My belly is pinkish and sparsely coated with hair
My young will be raised on milk and motherly care

When moving about, I walk on my knuckles
I can also climb trees with a tail full of muscles

Living without teeth, I'll never visit the dentist
A regular diet of termites and ants is what I insist

My long sticky tongue will reach into their nest
This source of protein is one of nature's best

I live a quiet life and do not emit any call
If threatened, I simply curl up into a ball

But somehow this self defence seems never enough
Just in case I'm cruelly captured and treated rough

By people who hunt me down for medicine or food
Or others hoping to boost their libido and mood

Please understand that I'm part of native biodiversity
I'll be most grateful if you can protect me and my family

We're trying to survive in our rainforest home
We just need our privacy and freedom to roam

POACHING OF PANGOLINS IS WIPING OUT SOUTHEAST ASIA'S SCALY ANTEATER

CONTRARY TO CERTAIN BELIEFS,
PANGOLIN SCALES DO NOT HAVE
ANY MEDICINAL VALUE.

Tragically, due to poaching for traditional medicine and consumption, Asian pangolins have almost disappeared from China, Cambodia, Vietnam and Lao PDR. Illegal hunters are now sourcing in S.E. Asia.

Increased pangolin smuggling activities are wiping out wild populations in the forests of S.E. Asia. Recent seizures in multiple tonnes of pangolin scales indicate the severe plight of our pangolins.

Pangolins cannot be captive bred, breeding only one young at a time.



Sunda Pangolin *Manis javanica*

**Protect our precious biodiversity.
Save our unique toothless anteater.
Act now to stop the massive illegal
trade in pangolin meat and scales.**



PANGOLIN FLIGHT: Scales are removed from pangolins and their fetuses eaten in the mistaken belief that these improve health. Scales are formed from the animal's hair fused together and have no medicinal value. Choose alternative herbal remedies for good health.



a collaboration project by



www.cicadatree.org.sg



www.acres.org.sg



www.naturesniche.com



www.nss.org.sg

In support of TRAFFIC, the
wildlife trade monitoring network.

www.traffic.org

Above: Poster produced in Oct 2009 by Cicada Tree Eco-Place and designed by Teresa Teo Guttensohn to launch "Save The Pangolin" campaign and to create awareness of the poaching of pangolins.



Save the Pangolin

Pangolins are nocturnal mammals that live in the forests of Asia. They are covered in scales instead of fur. They feed exclusively on ants and termites.

Pangolins face many threats from reduced habitat, road traffic and most importantly, from hunting.

Every year, thousands of pangolins are caught or killed and transported to markets for their meat and scales.

The slaughter and the trade of pangolins have to stop. It is illegal, cruel and unnecessary.

Read this informative booklet to learn more.

