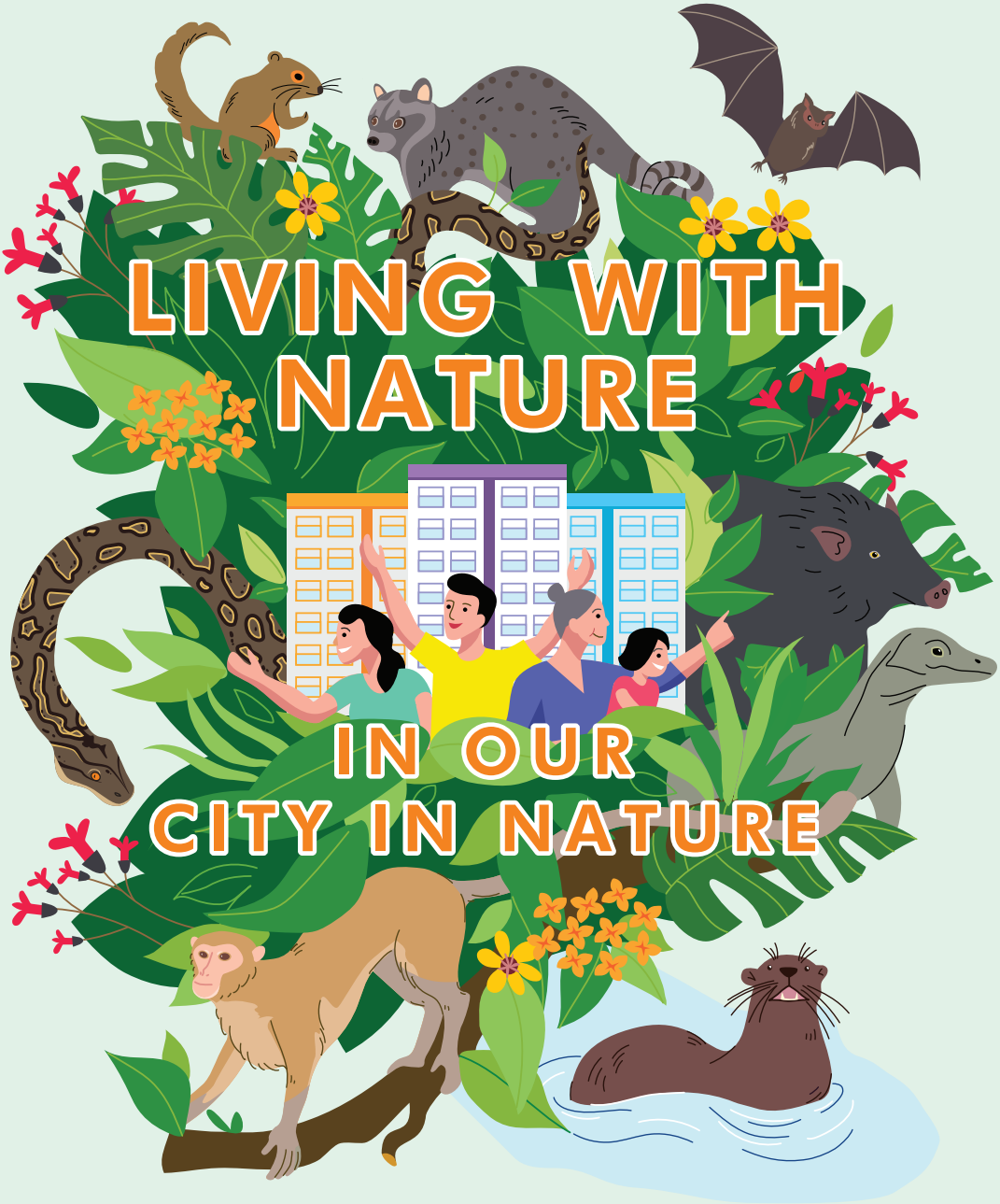
LIVING WITH NATURE IN OUR CITY IN NATURE



NATIONAL PARKS

LET'S MAKE SINGAPORE OUR CITY IN NATURE

CONTENTS

Pg 01 **Living with Nature – in our City in Nature**

Pg 03 **Long-tailed macaque**

Pg 07 **Otters**

Pg 11 **Wild boar**

Pg 13 **Snakes**

Pg 17 **Bats**

Pg 20 **Common palm civet**

Pg 22 **Monitor lizards**

Pg 24 **Squirrels**

Pg 26 **Responsible encounters with wildlife**

OVERVIEW

Welcome to Singapore, our City in Nature!

Our efforts to enhance our natural spaces have brought people closer to nature and wildlife. It is important that we co-exist responsibly with our neighbours for the safety of both people and wildlife. This guidebook identifies several wildlife species that are commonly encountered in Singapore, covers the dos and don'ts should you encounter them, and how you can prevent incursion into your home.

Let's do our part in building our City in Nature!

Long-tailed macaque *(Macaca fascicularis)*

CHARACTERISTICS

Being a native primate species, the long-tailed macaque is a fundamental part of Singapore's biodiversity. It is highly sociable and spends mornings and late afternoons foraging, grooming and socialising with other members of its family. The social hierarchy of this species is complex. The highest-ranking male exhibits significant dominance over the lower-ranking males and has priority when it comes to foraging and grooming. Similarly, the highest-ranking female dominates over the other females, favouring those close to her.

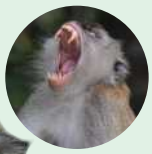
Do you know?

The long-tailed macaque has a variety of facial expressions to communicate in its social environment. Being familiar with these expressions will help to mitigate any potential human-macaque conflict. For example, when it is feeling **fearful** and anxious, or being submissive towards a more dominant individual, it shows a **fear grin with its eyes open and teeth bared.**

Photo credit: Jayasri Lakshminarayanan

When giving a **warning to stay away**, it **bares its teeth with both its eyes and mouth open.**

Photo credit: Chanelle Lim



If it is feeling **tired and sleepy**, it **yawns with its eyes closed and mouth open.**

Photo credit: Jayasri Lakshminarayanan

Photo credit: Jayasri Lakshminarayanan

Photo credit: Max Khoo

DIET

Being generalists, the natural diet of the long-tailed macaque consists of insects, leaves, flowers and fruits. It occasionally eats crabs, hence its other common name, crab-eating macaque. However, they can supplement their diet with human food as it is more easily accessible with higher caloric content. It is therefore important to avoid irresponsible feeding and improper food disposal.

HABITAT

The long-tailed macaque naturally inhabits forested areas. However, being a forest fringe animal, it also frequents its immediate surroundings to explore and forage for food. Besides forests, the long-tailed macaque is also found in mangroves.

ECOLOGICAL ROLE

They help in seed dispersal through the consumption of fruits. As they move around the forest and defecate, the seeds are dispersed. Furthermore, with the nutrients contained in the excrement matter, the seeds will stand a higher chance of germinating and subsequent survival.

HOW TO KEEP LONG-TAILED MACAQUES OUT OF YOUR HOME

It is important to monkey-proof your home to minimise monkey incursions, especially if you're living near nature areas.

1. Keep food out of sight from open windows, doors or other openings.

2. Close doors, windows, and secure any easy access into your home when macaques are in the area such as by installing grills or mesh.

3. Manage your garbage by securing bins with bungee cords to make food less accessible.

4. If you own fruit trees, harvest or conceal your fruit with cloth or mesh as macaques are visual creatures who are attracted to easy food sources.

WHAT TO DO WHEN YOU ENCOUNTER A LONG-TAILED MACAQUE

If you are at home,

- Stop whatever you are doing immediately.
- Remain calm and quiet.
- Do not make sudden movements or make direct eye contact with it.
- Search for an escape route for it.
- Without cornering the monkey, keep hitting the ground with a stick or spray a strong jet of water at the monkeys to lead them towards the exit.
- Alternatively, go to a safe place and wait for the monkey to leave.
- Never try to hit the monkey.
- If you have a child with you, put him/her on your shoulders to increase your perceived size, which could deter the monkey from approaching you and your child.
- Call NParks' Animal Response Centre at **1800-476-1600** if you require further assistance.

WHAT TO DO WHEN YOU ENCOUNTER A LONG-TAILED MACAQUE

If you are outdoors and a monkey approaches you,

- **Remain calm and quiet.** Do not make sudden movements and do not make direct eye contact with it.
- Back away slowly. Do not turn away and run.
- Avoid the area until the monkey is gone.
- Use backpacks instead of plastic bags in parks and nature reserves as monkeys associate plastic bags with food.
- **Never feed the monkey**, as the forest provides enough food. Feeding draws them out to human areas. Vehicles have injured and killed many macaques waiting to be fed along the roads.
- If you have a child with you, put him/her on your shoulders to increase your perceived size, which could deter the monkey from approaching you and your child.
- Never try to hit the monkey.
- If you are holding an object that is attracting it, hide it or throw it away.

Otters (Lutrinae)

CHARACTERISTICS

Otters found in Singapore are social animals which form groups of two to more than 10. They communicate by calls and scent, and have webbed feet highly adapted for swimming. Otters are territorial and will defend their space, with different family groups marking their territory with their spraints, which contain a jelly-like substance with a distinct fishy smell. Resident otters compete for living and feeding spaces and will drive away rival otter families. Sometimes, adult otters may not be in groups and move around as a lone individual. These lone otters may either reunite with its family, or may be seeking a new partner or territory.

Do you know?

There are at least 10 families of smooth-coated otters in Singapore. Two in particular, the Bishan and Marina otter families, were involved in several widely publicised skirmishes, effectively resulting in a swap in territory.

Photo credit: Max Khoo

Two otter species have been recorded in Singapore. The more common species is the **smooth-coated otter** (*Lutrogale perspicillata*), whereas the rarer species is the **Asian small-clawed otter** (*Aonyx cinereus*).

Photo credit: Max Khoo

SMOOTH-COATED OTTER
(Lutrogale perspicillata)

It is a relatively large otter, ranging from 7 kg to 11 kg in weight and 96 cm to 120 cm in total body length. Its upperparts are brown, while its throat and sides of neck are cream in colour. It has a long body and a flattened tail covered in short, sleek fur. Its feet are fully webbed with prominent claws.

HABITAT OF THE SMOOTH-COATED OTTER

The smooth-coated otter frequents mangroves, mudflats and other coastal areas, as well as waterways with fish. In Singapore, it also travels over land through park connectors, parks, and urban estates near waterways.

Photo credit: Max Khoo

ASIAN SMALL-CLAWED OTTER
(Aonyx cinereus)

Unlike the smooth-coated otter, the Asian small-clawed otter has short claws that have less webbing compared to those of the smooth-coated otter and do not extend beyond the pads of its webbed fingers and toes. With a total body length of 73 cm to 96 cm, it is the smallest otter species in the world.

HABITAT OF THE ASIAN SMALL-CLAWED OTTER

The Asian small-clawed otter lives in freshwater wetlands such as mangroves, swamps, meandering rivers, irrigated rice fields as well as estuaries, coastal lagoons and tidal pools. The distribution for the Asian small-clawed otter in Singapore is restricted to Pulau Tekong and Pulau Ubin.

DIET

Smooth-coated otters mainly feed on fish. Their re-emergence in Singapore's waterways after a period of absence suggests the success of cleaning operations. The improvement in water quality in these waterways allowed for sufficiently large fish populations to sustain a thriving otter population.

While Asian small-clawed otters also eat fish, a bigger proportion of their diet consists of crabs and molluscs.

ECOLOGICAL ROLE

Otters are **keystone species**. Though their populations are small compared to those of other species, their presence strongly influences these other species in their habitat.

Otters are sensitive to any negative impacts along their food chain and are also the first species to disappear when their environment is polluted. Hence, they indicate the health of the ecosystem they inhabit.

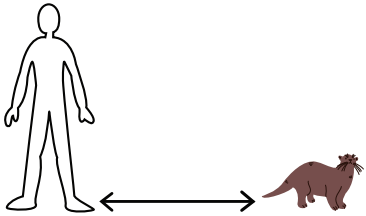
While otters are seemingly thriving in Singapore now, this was not the case several decades ago. Due to polluted waterways and degraded shores, the otters disappeared. Their re-emergence was observed after a cleanup of our waterways was completed. This is a reminder of the need to take responsibility of our environment because our actions will affect the creatures living in our ecosystem.

Photo credit: Max Khoo

WHAT TO DO WHEN YOU ENCOUNTER OTTERS

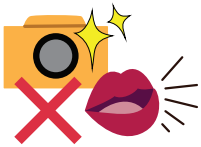
If you see otters,

1. Always observe from a distance.
2. Do not approach an otter family especially if there are pups as they are fiercely protective over them.



3. Do not chase, corner or disturb them.

4. Do not talk loudly or use flash photography.

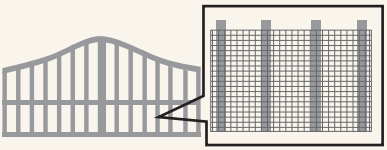


5. Do keep your pets under control, e.g keeping your dog on a tight leash.

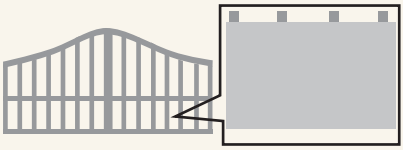
HOW TO KEEP OTTERS OUT OF YOUR HOME

Otters are attracted to places where they can find fish, and they cannot differentiate between wild and pet fish. Hence, they sometimes enter houses, slipping through gaps in fencing or under gates, and scale short barriers to get to a pond. Once they find an accessible pond with fish, they are likely to return.

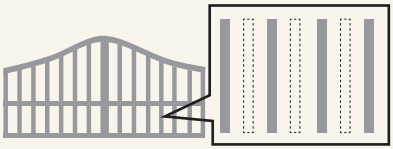
Hence, to ward off otters, identify possible entry points and block them off.



Use wire mesh to seal off gaps
(This is often the most cost-effective method).

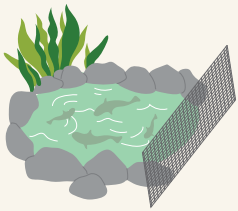


Use a panel to cover the
bottom of gates/fences.

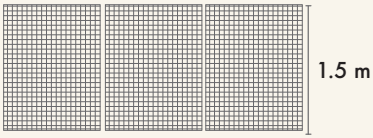


Modify the gates/fences to make gaps smaller.

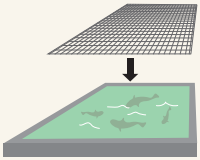
If you have a fish pond at home,



Fence it off.



Install barriers that are at least 1.5 m high.



Cover it with netting or panels.

Wild boar
(Sus scrofa)

CHARACTERISTICS

The wild boar is a highly adaptable animal. Males are usually solitary, whereas females, also known as sows, and especially those with young, travel in a group.

Photo credit: Bryan Lim

DIET

The wild boar is not a picky eater. Its diet consists of plant foods such as rhizomes, roots, tubers, bulbs, nuts, berries, seeds, leaves, bark, twigs and shoots, together with animal foods which include earthworms, insects, molluscs, fish, rodents, insectivores, bird eggs, lizards, snakes, frogs and carrion.

The diet of the wild boar unfortunately sometimes incorporates human food waste due to illegal feeding and improper disposal of food waste. Human feeding and improper disposal of food waste should be avoided in order to prevent boars from associating humans with food and wandering out to urban areas to forage.

HABITAT

While the wild boar naturally inhabits forested areas, it can be encountered in the urban parts of the island too, especially in areas which are next to forested patches.

Other habitats include grasslands and even mangroves forests.

ECOLOGICAL ROLE

With its acute sense of smell, the wild boar is able to dig out underground tubers and seeds for food. It consumes the seeds and release the seeds as waste as it roams around the forest, thereby dispersing them in the forest.

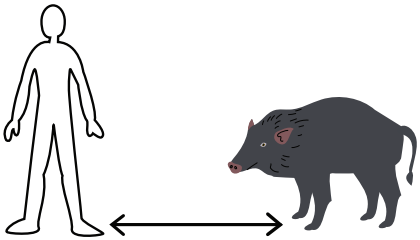
Do you know?

A sow can give birth to up to eight piglets at a time! If you see an adult boar accompanied by piglets, avoid approaching them as the sow is protective of her young and might see people as a threat.

WHAT TO DO WHEN ENCOUNTERING A WILD BOAR

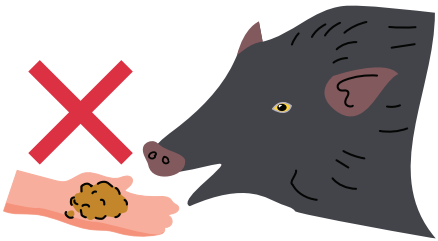
While foraging for food, the wild boar might wander into parks and gardens. Though it is not prone to attack unless threatened or provoked, females with young piglets are protective of their young and hence more likely to feel threatened by humans.

- **Stay calm and observe from a safe distance.** Move away slowly to give it space to retreat. Do not attempt to approach for photographs, especially if it is accompanied by piglets. Keep your pets at home when visiting a nature area with wild boars as the wild boars may be provoked by them.



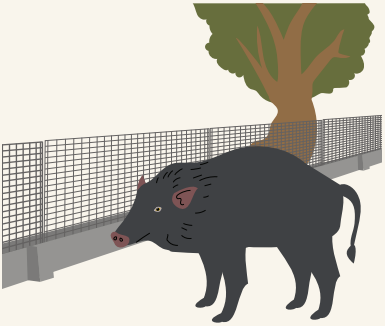
- **Do not feed it**, as feeding increases its reliance on humans for food and changes its natural foraging habits. Feeding it may encourage it to head out of the forest more often and approach people for food, sometimes turning aggressive. This also causes its population to grow at an unnatural rate, affecting ecosystems that it is a part of.

- Keep your food out of the sight of wild boars and dispose of all food waste properly when visiting nature areas.



HOW TO KEEP WILD BOARS OUT OF YOUR HOME

- Wild boars may damage fences while foraging for food due to their digging behaviour. Hence, **ensure that fences are made from sturdy material like galvanised steel and properly maintained with a solid concrete base that is dug at least 30 cm into the ground**. This is especially so if you grow food plants such as edible roots and fruits that will attract wild boars. If you require more advice, you may contact NParks' Animal Response Centre at **1800-476-1600**.



- Do dispose of all your food waste properly.

Snakes (Serpentes)

CHARACTERISTICS

Snakes, like all reptiles, are ectothermic (cold-blooded), regulating their body temperature using heat radiating off their surroundings through the process of thermoregulation.

There are 67 species of snakes found in Singapore, and they are active all year round due to Singapore's tropical climate. They are mostly shy and will avoid humans unless threatened.

ECOLOGICAL ROLE

Snakes serve as a biological control for local rodent populations. They are also vital to food webs as predators of small animals and prey to larger animals and birds.

COMMON SNAKES IN SINGAPORE

BLACK SPITTING COBRA
(Naja sumatrana)

It is **highly venomous** and **ground-dwelling**. Its diet consists of rodents and amphibians. It occurs in forests, scrublands and gardens. In Singapore, this snake can also be encountered in urban areas such as drains and in houses.

Photo credit: Noel Thomas

RETICULATED PYTHON
(Malayopython reticulatus)

The reticulated python is non-venomous and mostly ground-dwelling but is also a **good tree climber**. Bigger than other snakes, its diet consists of rodents as well as larger mammals like deer and boars. It is usually found in forests, but is also commonly spotted traversing human infrastructure like drains and canals. In fact, it is the most commonly encountered snake species in urban areas!

Photo credit: Cyrena Lin

COMMON WOLF SNAKE
(Lycodon capucinus)

The common wolf snake is **non-venomous** and mostly **ground-dwelling**. Its diet consists of geckos and skinks. It is commonly encountered in human settlements like suburban and rural areas, as well as buildings and gardens, and can even be found in people's houses, especially near or under flower pots.

Photo credit: Noel Thomas

STRIPED KUKRI SNAKE
(Oligodon octolineatus)

This snake is **non-venomous** and **ground-dwelling**. Its diet consists of lizards and frogs. It normally inhabits forests. However, it can sometimes be encountered in urban settings like parks, gardens, playgrounds or even people's houses.

Photo credit: Noel Thomas

PAINTED BRONZEBACK
(Dendrelaphis pictus)

This snake is **non-venomous** and **tree-dwelling**. Its diet consists of lizards and frogs. While it usually inhabits forests, it is also common in both suburban and rural areas like parks and gardens.

Photo credit: Noel Thomas

PARADISE TREE SNAKE
(Chrysopelea paradisi)

The paradise tree snake is **mildly venomous**, but its venom is targeted at prey and generally harmless to humans. It is **tree-dwelling** and its diet consists of lizards and small birds. It inhabits natural areas like forests and mangroves, but can also be found in urban settings like parks and gardens.

Photo credit: Max Khoo

STRIPED BRONZEBACK
(Dendrelaphis caudolineatus)

It is **non-venomous** and **tree-dwelling**. Its diet consists of lizards, frogs and young birds. It can be found in forests like in the Bukit Timah and Central Catchment Nature Reserves, as well as parks and gardens, suburban and rural areas and even occasionally people's houses.

Photo credit: Alex Figueroa

ORIENTAL WHIP SNAKE
(Ahaetulla prasina)

This snake is **mildly venomous**, but its venom is targeted at prey. It is **tree-dwelling** and its diet consists of lizards, frogs and small birds. It inhabits the forest edge, scrubland and gardens. In Singapore, it can be found in wooded areas, and suburban parks and gardens.

Photo credit: Cai Yixiong

WAGLER'S PIT VIPER
(Tropidolaemus wagleri)

This snake is **highly venomous** and **tree-dwelling**. Its diet consists of rodents and birds. Its habitat is restricted to forested areas in the Bukit Timah and Central Catchment Nature Reserves and Pulau Tekong. However, it can occasionally be found in urban areas that are at the fringe of these forests.

Photo credit: Alex Figueroa

Photo credit: Holly Siow

WHAT TO DO WHEN ENCOUNTERING SNAKES

If you are in a public area,

- Observe from a safe distance, as snakes will not attack unless disturbed or provoked.
- Stay calm and back away slowly, giving it space to retreat.
- Do not approach or attempt to handle the snake.
- Leave it alone, especially if it is in its natural habitat. **Call NParks at 1800-476-1600 if you need assistance**.
- Keep pets on a tight leash as they might chase the snake and frighten it.

If you are at home,

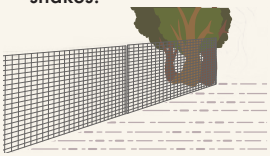
- Keep your distance and call for professional help – the snake might be looking for a dark and secure area to hide.
- Keep all family members and pets away from where the snake is.
- If snake is found inside a room, keep all doors and windows that lead outside open for the snake to exit.
- Find out why the snake came to your area – a potential cause can be improper waste disposal which attracts pests that snakes prey on.

HOW TO KEEP SNAKES OUT OF YOUR HOME

1. Practise proper food waste disposal to keep rodents away.

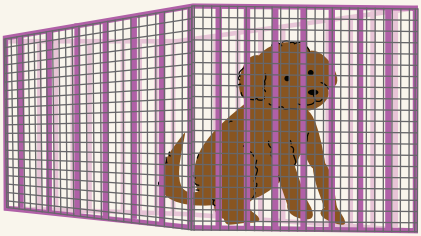
2. Remove potential hiding places, such as unused pots or containers, holes and gaps in property.

3. Install wire mesh or acrylic panes at least 1m high, dug into the ground surrounding the property to keep out terrestrial snakes.



4. Keep grass short and seal up any holes/burrows in gardens.

5. Keep pets indoors or ensure that its cage is snake-proof.



Bats (Chiroptera)

CHARACTERISTICS

Bats are the world's only flying mammals, being able to fly long distances to find food at night. Like civets, bats are nocturnal. You may not have noticed them as they usually come out at night and do not make much noise.

Do you know?

Bats are the second-most species diverse mammals with more than 1,000 species globally. They are not foreign to Singapore, as 25 native species can be found here.

NParks has been studying Singapore's bat populations since 2011, and so far, no transmittable zoonotic diseases, including COVID-19, have been detected in bats locally. There has also been no case of sicknesses transmitted from bats to humans in Singapore.

COMMON BATS IN SINGAPORE

LESSER DOG-FACED FRUIT BAT
(Cynopterus brachyotis)

Generally, it is brown with reddish (males) or yellowish (females) collar. Its head has a long muzzle and large eyes. Its tail is short and it has two pairs of lower incisor teeth.

Photo credit: Nick Baker, EcologyAsia.com

WHISKERED MYOTIS
(Myotis muricola)

Its upper side is coloured brown or grey with dark bases and the underside has dark bases and light brown tips. The ears are moderately long, slender, bent forwards and bluntly pointed. The tail is long and enclosed in the membrane between its hind legs.

Photo credit: Nick Baker, EcologyAsia.com

CAVE NECTAR BAT
(Eonycteris spelaea)

Its upperparts are dark greyish brown while its underparts are paler. It has a long and narrow muzzle and large eyes. Its tail is short and not linked to flight membrane. There is no claw on its second finger.

Photo credit: Nick Baker, EcologyAsia.com

ECOLOGICAL ROLE

Bats perform important ecosystem functions. Nectar and fruit bats sustain and regenerate rainforests by pollinating flowers and dispersing seeds so that new plants can grow. Insectivorous bats feed on many kinds of insects, keeping their population under control.

HABITAT

Bats mostly stay within green spaces, seeking shelter under trees, shrubs or even banana leaves! However, they are also common in urban areas wherever there are food and suitable roosting spots.

DIET

Diets vary across bat species. Insectivorous bats feed on insects, including mosquitos, fruit bats will forage for fruit from a variety of shrubs and trees like durian, papaya, petai and chiku, while nectar bats will feed on, as hinted in the name, nectar from flowers of plants like banana and petai.

A cave nectar bat *(Eonycteris spelaea)* pollinating a banana flower when feeding

Photo credit: Benjamin Lee

WHAT TO DO WHEN ENCOUNTERING BATS

- Call NParks' Animal Response Centre at **1800-476-1600** if you see a bat that is grounded, injured, distressed or trapped. Do not touch or pick up the bat yourself as it may cause further stress or injury to the animal, or the bat might bite in self-defence.

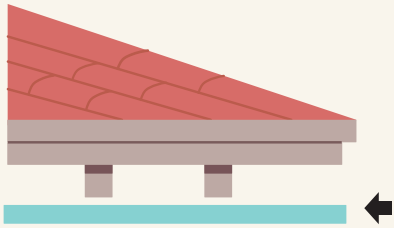
- Do not feed bats as it will change their natural foraging behaviour and make them reliant on humans for food, as well as affect the regeneration of our forests.
- Keep calm and leave bats alone if they are spotted outdoors flying or feeding, as they will come and go on their own.

- If a bat accidentally enters your house, let it try to leave on its own. Help it by opening the windows and turning off the lights and spinning fans. Close the doors to prevent it entering deeper into the premises. Call NParks' Animal Response Centre at **1800-476-1600** if the bat is unable to escape.

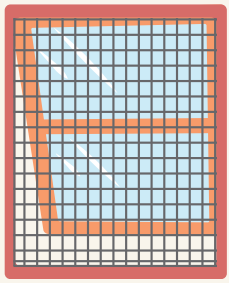
HOW TO KEEP BATS OUT OF YOUR HOME

If bats frequently enter your house or come to your house to roost:

Use smooth surfaces (acrylic, plastic sheet) to cover the structure or area where bats perch.



Install temporary mesh on windows or seal up gaps that serve as entry points into the house.



If there are trees with fruits that bats are attracted to, harvest them or cover them with cloth or mesh bags.

Common palm civet (*Paradoxurus musangus*)

CHARACTERISTICS

Also called Musang in Malay, the common palm civet has spots on its body and a long bushy tail, and appears to wear a black "bandit"-like mask. It is nocturnal and thus often active from 6pm to 4am, when it is dark. It is usually solitary, with the exception of females with young. Like many other wildlife, it is shy and typically avoids people.

Photo credit: Bryan Lim

ECOLOGICAL ROLE

The common palm civet promotes seed dispersal by swallowing seeds whole while eating fruits and then defecating them, helping to maintain and improve the health of Singapore's forests. It also serves as a form of biological pest control by feeding on rats and pest insects, thereby suppressing their populations.

Do you know?

In Indonesia, common palm civets are fed coffee beans which are later excreted in their scat. These excreted coffee beans are used to make kopi luwak, the world's most expensive coffee. Unfortunately, the increased demand and profitability of this product has created an industry of intensive farming, where wild civets are confined in small cages and fed an unhealthy diet consisting exclusively of coffee berries.

HABITAT

In Singapore, it lives mainly in forests and mangroves, but can be found in urban areas as well.

DIET

The common palm civet is omnivorous, eating fruits like Chiku *(Manilkara zapota)* and fishtail palm *(Caryota mitis)*, as well as insects, molluscs and rodents.

Fishtail palm

Photo credit: Ang Wee Foong

Chiku

Photo credit: NParks Flora & Fauna Web

SIGNS OF CIVETS

You can tell that a civet has passed by when you detect:

1. Footprints, especially on climbing structures like pipes.

2. Scats (animal droppings).

Photo credit: Fung Tze Kwan

3. Sounds or civet calls on your roof at night.

WHAT TO DO WHEN ENCOUNTERING CIVETS

If you encounter a civet outdoors,

- Observe it from a distance, giving it space to retreat.
- Do not feed it, as feeding will alter its natural foraging behaviour and make it reliant on humans for food.

If a civet enters your house,

- Remain calm and open the windows to allow it to leave.
- Call NParks' Animal Response Centre at **1800-476-1600** when
  - **A.** Civet is trapped in your house.
  - **B.** Civet appears to be injured.
  - **C.** You require further advice on civet-related issues.

HOW TO KEEP CIVETS OUT OF YOUR HOME

To keep civets out of your home, you should limit your food sources.

- Do not leave food exposed, including pet food.
- Keep food in cupboards and closed containers.
- Harvest fruits regularly if you have fruiting trees.
- Wrap ripening fruits on trees with cloth/ plastic containers/bags.

- Close windows at night, especially in places where food is visible like the kitchen.

To keep out civets travelling on your roof:

- Prune trees and overhanging branches to restrict access.
- Install metal collar around pipes/ structures which civets climb up.
- After ensuring that there are no civets inside, seal off entrances to your roof to prevent civets nesting in your roof space.
- If there are juvenile civets, do not approach or touch them. They are guarded by their mother and will leave on their own in a few months.

- Install a spotlight shine in your roof to encourage nesting civets to relocate.

Monitor lizards (Varanus)

CHARACTERISTICS

In Singapore, there are three species of monitor lizards. Regardless of species, monitor lizards are venomous. Their venom is targeted to kill small prey.

Photo credit: Cyrena Lin

CLOUDED MONITOR
(Varanus nebulosus)

It has a narrow head, as well as thick and leathery skin with small non-overlapping scales. Its snout is relatively short with nostrils positioned midway between the eye and the tip of the snout. Its greyish brown body is densely covered with yellow spots. It can grow up to a length of 1 m to 1.5 m.

MALAYAN WATER MONITOR
(Varanus salvator)

Photo credit: Max Khoo

It is one of the world's largest lizard species that can grow to about 3 m long. It has a long and flattened snout, with nostrils positioned close to the tip of its snout.

While terrestrial, it tends to stay close to water bodies like canals and lakes, where it is sometimes mistaken for a crocodile. It can also climb trees.

DUMERIL'S MONITOR
(Varanus dumerilii)

Adult Dumeril's monitors are largely dark brown, with occasional brighter indistinct crossbars. They are mostly found in the deep parts of our nature reserves and do not inhabit urban areas. Hence, they are much more rarely seen.

Photo credit: Michael Cota

DIET

Being carnivorous, their diet consists of insects, crabs, snakes, fish. Some also scavenge on carrion (decaying flesh from carcasses).

HABITAT

Monitor lizards live in forests and mangrove swamps, and can also be spotted in canals.

POACHING

Poaching of monitor lizards sometimes occurs in Singapore. If you witness any illegal trading or poaching, collect information on the traps, animals, poachers, and/or their vehicle license plate number, and call NParks' Animal Response Centre at **1800-476-1600** or the police.

ECOLOGICAL ROLE

Monitor lizards control the population of their prey and in turn are a food source for larger predators like crocodiles. Being scavengers, they also assist in biomass decomposition and recycling, thereby keeping their habitat clean.

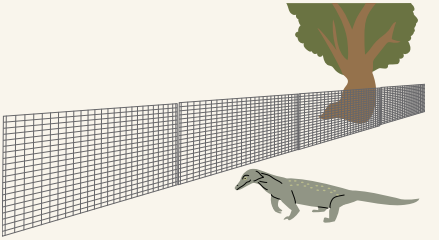
WHAT TO DO WHEN ENCOUNTERING MONITOR LIZARDS

- If you encounter a monitor lizard, keep calm as it is generally shy and will not attack unless provoked.
- Observe from a safe distance.
- Do not touch, chase or corner it as it may attack in self-defence.
- If you are indoors, keep an exit door open and/or call NParks' Animal Response Centre at **1800-476-1600**.
- Seek medical attention immediately if you are bitten. While its venom is not lethal to humans, its bite can cause infections.

HOW TO KEEP MONITOR LIZARDS OUT OF YOUR HOME

- Practise proper food waste disposal.
- Seal holes and gaps in property (e.g. under pool decks or other cool crevices).
- Prune trees and overhanging branches to restrict access. While monitor lizards are mainly terrestrial, some of them are excellent tree climbers.

Photo credit: Cyrena Lin



- Install wire mesh or acrylic panes at least 1 m high.
- Keep your pets safely indoors.

Squirrels (Sciuridae)

CHARACTERISTICS

Two of the most common squirrel species in Singapore are the plantain squirrel and the slender squirrel. Both species are arboreal, preferring to jump from tree to tree rather than stay on the ground.

HABITAT

The plantain squirrel can be found commonly in urban parks and gardens, as well as forests and mangroves while the slender squirrel is mostly restricted to forests and gardens.

DIET

Both squirrel species feed on soft bark, fruits, leaves and insects.

ECOLOGICAL ROLE

Squirrels shape plant composition of forests through seed dispersal. In tropical forests like Singapore, squirrels disperse seeds by dropping them immediately after eating the pulp of nuts or flesh of fruits.

COMMON SQUIRRELS IN SINGAPORE

PLANTAIN SQUIRREL
(Callosciurus notatus)

Photo credit: Cai Yixiong

SLENDER SQUIRREL
(Sundasciurus tenuis)

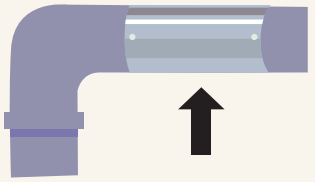
Photo credit: Robert Teo

HOW TO KEEP SQUIRRELS OUT OF YOUR HOME

The teeth of squirrels are always growing, hence squirrels tend to chew on hard objects to maintain them. Sometimes, these objects may be furniture, wires and tree bark, which may inconvenience people. They also feed on vegetables and fruits in gardens, or enter houses in search of food.

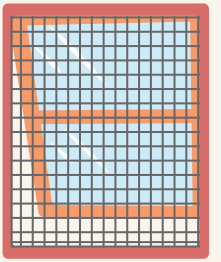
To discourage squirrels from entering your house:

1. If the squirrel is often seen climbing up a particular structure, installing a metal collar will make it difficult for it to climb up.



2. Prune off the branches close to the window.

3. Install a magnetic fly mesh by the window to prevent entry.

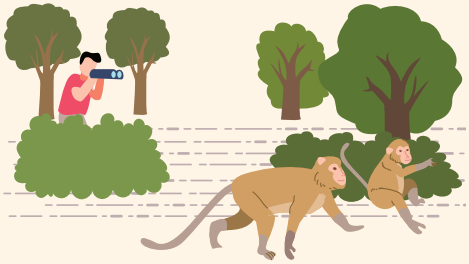


4. If the squirrel is chewing on an object, spraying the object with a vinegar solution or something hot (e.g chili powder mixture) might deter it.

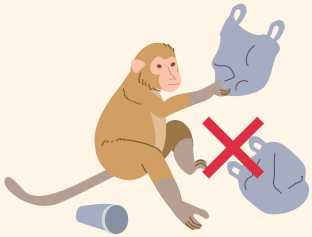
RESPONSIBLE ENCOUNTERS WITH WILDLIFE

To live in harmony with our wild neighbours, we need to co-exist responsibly with them.

1 **Observe wildlife from a safe distance.**



2 **Keep food and plastic bags out of sight.** Some animals have learnt to associate plastic bags with food.



3 **Do not feed wildlife.** As Singapore is home to a healthy ecosystem of flora and fauna, there is enough food in the natural environment in the form of a large variety of native plants.

Feeding can lead to:

(i) Unsustainable population growth.

(ii) Environmental pollution.

(iii) Changes in wildlife behaviour.
- Animals lose their natural foraging ability and start venturing out of their natural habitats and approach humans for food. They might turn aggressive, leading to potential conflict.

(iv) Negative impact on wildlife health
- Anthropogenic/human food often do not meet the nutritional needs of wildlife, but instead may even make them sick or susceptible to disease.

Feeding of wildlife anywhere in Singapore can incur a maximum fine of up to **$20,000.**

4 **Dispose of food waste properly.** Leftover food waste will attract foraging animals. Returning your trays and used crockery promptly will ensure that there are no food remnants for them to feed on.

5 **No releasing of wildlife.** Not only will releasing wildlife affect natural ecosystems negatively, but these captive-bred animals often die soon after their release.

Releasing of wildlife anywhere in Singapore can incur a maximum fine of up to **$5,000.**

6 **Oppose the illegal wildlife trade.** If you witness any illegal trading or poaching, collect information on the traps, animals, poachers, and/or their vehicle license plate number, and call NParks' Animal Response Centre at **1800-476-1600** or the police. Do not buy any illegal animal products.

Killing, trapping, taking or keeping wildlife can incur a fine of up to **$20,000** and/or a **jail sentence of up to 12 months.** The illegal sale of wildlife or wildlife parts can incur a fine of up to **$10,000** and/or a **jail sentence of up to 12 months.**

7 **Stay on trails and take nothing but photographs.** When taking photographs, do not use flash photography in case it frightens wildlife. Keep quiet to avoid disturbing any wildlife.

8 **Observe the opening and closing times of nature reserves and nature parks (7am to 7pm).**

9 **Do not bring dogs to nature reserves and nature parks.** Dogs are known to scent mark places they visit which affects the movement of native. They may also bark at or harass native wildlife.

10 **Appropriately dealing with young birds.** If you encounter young fledglings on the ground, leave them where they are found as the parents will most likely come back for them.

11 **Watch out for wildlife when driving on a road near a nature area.**

12 **Call NParks' Animal Response Centre at 1800-476-1600 for any required assistance with wildlife-related matters.**

WILDLIFE ACT

Besides knowing about different types of wildlife, it is important to learn the laws that govern and protect them so that our encounters with them remain safe, pleasant and beneficial to both people and wildlife.

The Wildlife Act serves to protect, preserve and manage Singapore's wildlife in order to maintain a healthy ecosystem and safeguard public safety and health.

NATIONAL PARKS

LET'S MAKE SINGAPORE OUR CITY IN NATURE

We hope that you have learned a lot more about our urban wildlife through this guide.

Let's all play our role in building and living in our City in Nature!

Some of the photos were obtained from the NParks Flora and Fauna Web.
For more information, go to https://www.nparks.gov.sg/florafaunaweb

Share your love for nature and animals at
#NParksBuzz #AnimalBuzzSG