

A Guide to Sungei Buloh Wetland Reserve



If you have not been to Sungei Buloh Wetland Reserve, make this a 'must-do' item on your list and head there when you next have a good half day to spare. If you have visitors in town, consider bringing them there instead of the usual touristy trails. It is more than just a slice of rustic Singapore. You will be able to spot some of the world's rarest mangroves and wetland wildlife indigenous to this part of the world.

Even if these do not enthrall you, the peaceful and beautiful surroundings of the Reserve, with the Sungei Buloh Besar running through, will surely please.

History of Sungei Buloh

In 1986, a group of avid birdwatchers from then Malayan Nature Society (Singapore Branch) stumbled upon Sungei Buloh, and subsequently wrote a proposal to the government for its conservation.

The 87-hectare wetland site was designated as a nature park in 1989. The former Parks & Recreation Department, a precursor to the National Parks Board, undertook the development of Sungei Buloh, in consultation with experts in the field. On 6 December 1993, former Prime Minister Goh Chok Tong officially opened the nature park. It welcomed its 100,000th visitor in 1994.

On 1 January 2002, 130 hectares of Sungei Buloh was officially gazetted as a nature reserve and renamed Sungei Buloh Wetland Reserve to better

reflect its status. In that same year, Sungei Buloh was recognised as a site of international importance for migratory birds with Wetlands International presenting the Reserve with a certificate to mark its formal entry into the East Asian Australasian Shorebird Site Network. This network which includes Australia's Kakadu National Park, Hong Kong's Mai Po and Japan's Yatsu Tidal Flats. Sungei Buloh became Singapore's first ASEAN Heritage Park in 2003.

Mangrove Boardwalk

There are a few ways to get around the nature reserve. One of it is through a walk on the Mangrove Boardwalk which can easily be seen from the Visitor Centre. The Mangrove Boardwalk makes for a great introduction to the Mangrove Forest, an inter-tidal area and a buffer between land and sea. It brings you really close to the mangrove trees and wildlife without getting your feet wet or muddy.

Distance: 500m
Estimated walking time: 30 – 45 minutes

Route 1

Another way to enjoy the tranquility and serenity of the mangrove habitat is through Route 1. This route goes around the two main ponds and gives a good introduction to the Reserve and the birds of Sungei Buloh, especially during the migratory season from September to March.

Distance: 3km
Estimated walking time: 1 – 2 hours



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Tips: If you want to spot wildlife, walk quietly and stop occasionally. Look down among the mangrove roots and the leaves around you. There is an amazing variety of animals!

Highlights

- Two easy routes that bring you close to nature and wildlife
- Close look at mangroves, including some rare species
- Easy spotting of the abundant and thriving wetland wildlife
- Bird-watching amid the verdant, tranquil setting of Sungei Buloh Besar

How to get there

Mondays to Saturdays

By Bus:
Board SMRT Bus 925 at Kranji MRT Station. Alight at Kranji Reservoir carpark for a 15-minute walk to the Reserve.

You can also take the Kranji Countryside Express bus from the MRT station, which will bring you just outside the Reserve. Check out www.kranjicountryside.com/kranji_express_schedule.html for the bus schedule.

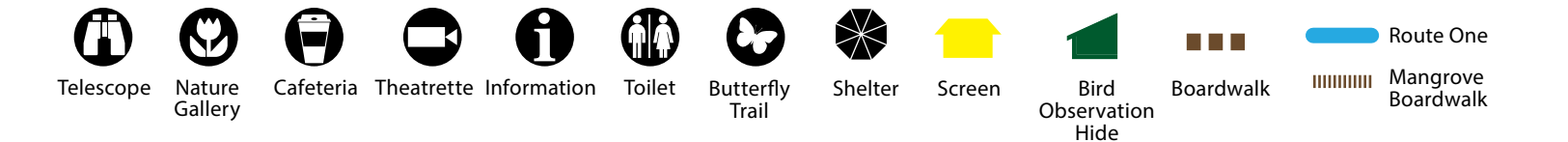
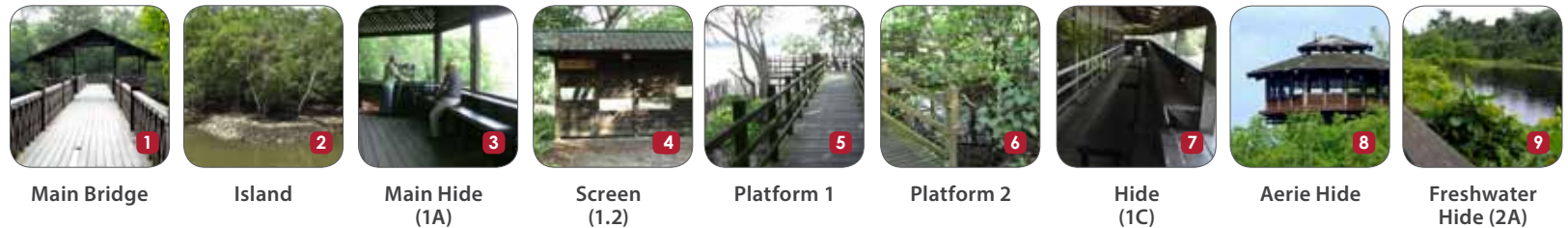
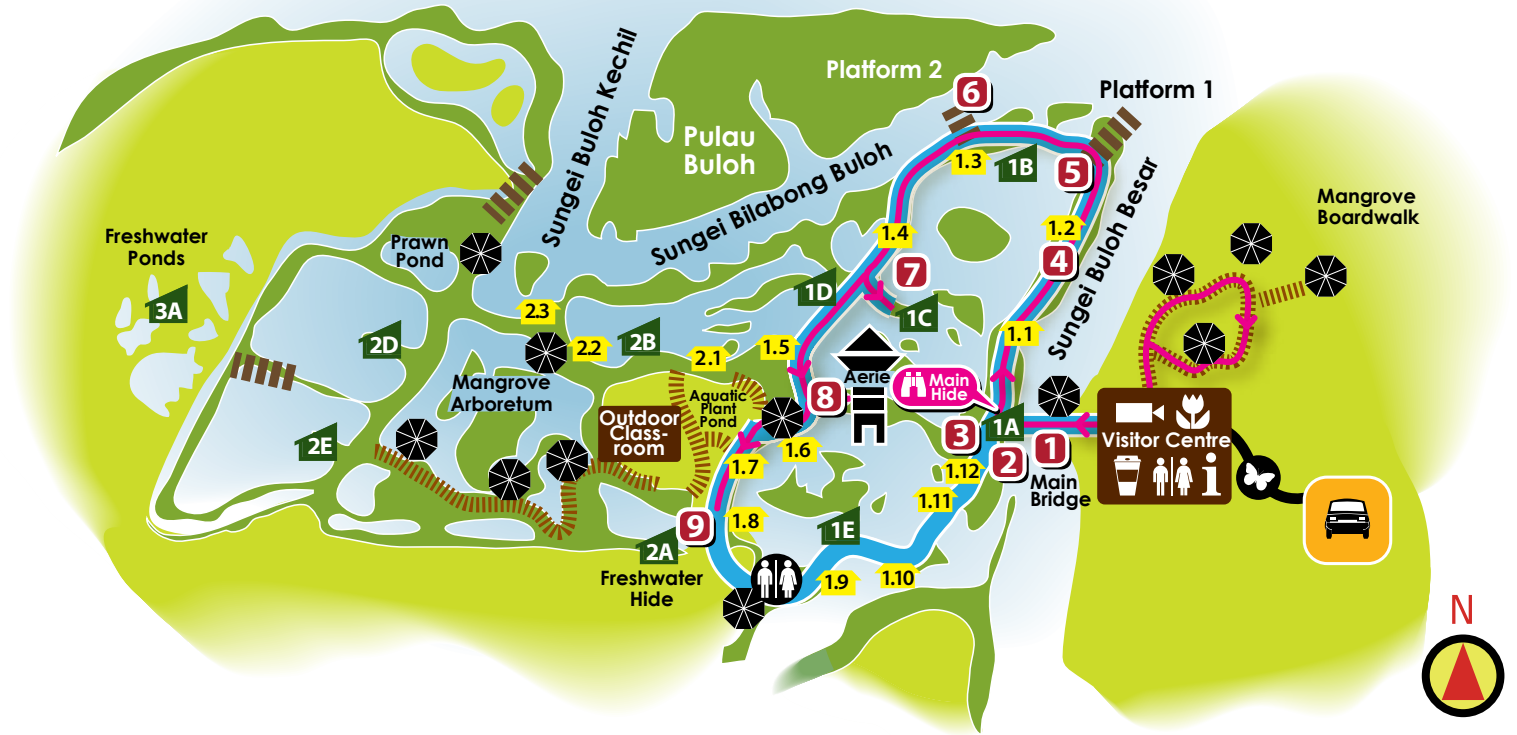
Sundays and Public Holidays

By Bus:
SMRT Bus 925 stops at the Reserve's entrance.

By Car:
If you are driving, take Lim Chu Kang Road, turn into Neo Tiew Road and then into Neo Tiew Crescent. Alternatively, take Kranji Road and turn into Neo Tiew Crescent. There is free parking at the Reserve.

Opening hours

- 7.30am – 7.00pm, Monday to Saturday
- 7.00am – 7.00pm on Sunday and public holidays



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Mangrove Boardwalk – What you can see on this trail

Creatures of the Mudflat

You are almost certain to see the **Giant Mudskippers** (*Periophthalmodon schlosseri*). These amazingly well-camouflaged creatures can be easily missed if you are not looking for them. Sometimes, they skip right out of the water. These amphibious creatures are actually fishes. They stay out of the water most of the time as they are able to breathe through their skin but they need to keep their skin moist by rolling in water.

The **Malayan Water Monitor Lizards** (*Varanus salvator*) are quite easily spotted especially on a hot day. They are often seen basking in the sun. In the water, they look like crocodiles although they are rather harmless. In fact, they are quite shy and will scurry away from your path when you encounter them. These are scavengers and will hunt for small animals like crabs, fish, insects and even small chicks.

Keep an eye out for the **Banded Archerfish** (*Toxotes jaculatrix*), which can often be seen shooting water at their prey such as insects or other small animals. They are remarkably accurate in their shooting, and an adult fish is said to be almost able to hit its target with its first shot. As the tide comes in, you may be lucky to spot Mangrove Stingrays and other fishes rushing in to feed on the mudflats. Birds such as kingfishers and woodpeckers are commonly encountered.

The Boardwalk has four shelters, some of which are decorated with artwork by students inspired by the mangroves. Sit a while here, especially

in the mornings and evenings, and you will spot many creatures as these are the peak times for wildlife activity.

If you see a hump of mud, it could actually be the home of **Mud Lobsters** (*Thalassina anomala*). These 'diggers' are responsible for the strange volcano-shaped mounds that are seen in the mangroves. Through their constant digging, they bring fresh mud to the surface, which recirculate nutrients through the ecosystem and help aerate the soil. Thus, the presence of these mounds is an indicator of the health of the mangrove forest. Their mounds can reach 3 metres high and 2 metres deep. The best time to catch sight of them is in the evenings.

The trees are not just full of spiders but **Tree-climbing Crabs** (*Episesarma sp.*). These tiny leaf-eating crabs are burrowers, digging holes at the base of mangrove trees and in Mud Lobster mounds. At high tide during the day, they are often seen clinging to tree trunks just above the water line.

Shield bugs, spiders such as the **Golden Orb Web Spider** (*Nephila pilipes*) and **St Andrew's Cross Spider** (*Argiope mangal*), and other insects abound. The Golden Orb Web Spider got its name from the gold-coloured silk that forms its web. The St Andrew's Cross Spider got its name from its four pairs of legs which form an 'X'.

Do not disturb the **Weaver Ants** (*Oecophylla smaragdina*) as they have a fiery bite. They live



Common Flameback



Golden Orb Web Spider



Mud Lobster



Banded Archerfish



Giant Mudskipper



Malayan Water Monitor Lizard



Tree-climbing Crab



Wireless Trail

The free wireless trail using ColorCode enables visitors holding mobile devices with cameras and internet connection to learn about the flora and fauna here.

After downloading the ColorCam software into their devices, visitors can explore the Reserve and take pictures of 25 coded images when they spot them throughout the trail.

Information about animals and plants found in the Reserve will be sent to their devices, and visitors will be able to learn about mangrove biodiversity through videos, images, music, games and quizzes. The number of codes will be increased gradually.

For instructions on how to download the software, go to www.sbvwr.org.sg/events/wirelesslearningtrail.

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among the Sea Hibiscus and feed on the nectar. In turn, the ants protect the plant from leaf-eating insects which are kept away by their nasty bite. The Weaver Ants build one of the most complex ant nests on treetops.

Mangroves – Adapting to survive

Mangroves have developed special roots such as pencil roots, knee roots or prop roots to help them survive. These porous roots help the trees to breathe. They take in sea water and the excess salt is secreted through tiny pores in the stems, roots and leaves. See if you can spot these different types of roots.

Mangroves are the only plants in the world to germinate while attached to the parent plant. The germinated seeds, called propagules, are able to produce their own food. Thus, they are able to survive extreme conditions for a long time by being dormant. These propagules drop off from their parent tree and into the swamp when they are big enough or ready to survive on their own.

Rare and interesting mangroves

Of the 70 species of mangroves in the world, Singapore has 31 of them and 27 of these can be found in Sungei Buloh alone. You are looking at the world's treasure trove of magnificent mangroves.

Also called the 'Looking Glass Tree' because of the light coloration of the underside of the leaves, the **Dungun** (*Heritiera littoralis*) is now an endangered tree species in Singapore because of habitat loss. Its leaves are dark green above and silvery white beneath, due to the overlapping star-shaped scales on the underside. Considered the hardest of Malayan timbers, it is valued for boat building.

In fact, it is so tough that in the past, the people in Malaysia used the wood as bullet-proof shields!

The **Tengar Merah** (*Ceriops zippeliana*) is the only mangrove plant with flattened buds. The bark and sap of the tree are collected to help make red and black dyes respectively and hence, they are important for the *batik* industry in this region.

The **Barat Laut** (*Cassine viburnifolia*) is one of the rarest mangrove plants in Singapore. Only 30 trees are left.

The **Mangrove Apple** (*Sonneratia alba*) is often cultivated in Malay villages for its edible fruit which is said to taste like cheese.

The **Mangrove Cannonball Tree** (*Xylocarpus granatum*) is so named because its fruits are round and large like a brown cannonball with cork-like seeds. The fruits are usually 10 – 25cm in diameter, and can weigh 2 – 3kg! When ripe, the fruits split open and fall from the tree, shattering and releasing the seeds which float away. The angular seeds fit perfectly inside the round fruit, but once spilled from the fruit, they are hard to fit back together. Hence, the tree is sometimes called the Puzzle Nut mangrove. Unfortunately, the tree is now endangered due to habitat loss.

The **Mangrove Trumpet** (*Dolichandrone spathacea*) has flowers which resemble a trumpet. Its flowers open only at night and last only for a day.

Mangroves have real economic value to mankind. They give us our charcoal, *gula melaka*, *attap chee* and *attap* for kampong houses. Some are even used to produce medicines.

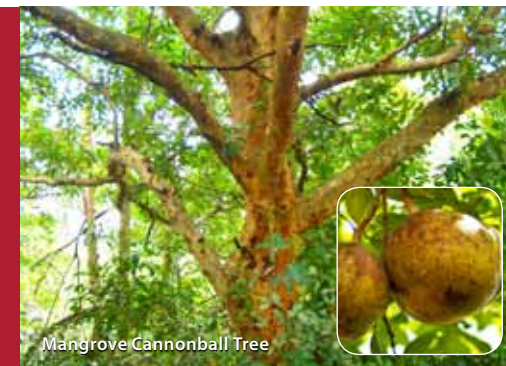
What are Mangroves?

They are trees or shrubs that grow along tropical shores. They are really hardy, able to thrive in salty, hot and muddy environments, conditions that would kill most other plants.

A mangrove forest is an inter-tidal area, a buffer between land and sea. If you look closely around the mangroves at low tide, you can spot many small fishes and crustaceans. The mangrove swamp is, in effect, a 'nursery' for our favourite seafood – crabs, prawns and fishes – which spend their early life there, in relative safety from predators of the sea.

Mangroves also slow down coastal erosion and in disasters like tsunamis, they help to protect lives and properties.

When Singapore was founded in 1819, about 13% of the island was covered with mangroves. Now, mangroves are found only in scattered patches.



Mangrove Cannonball Tree



Mangrove Roots



Dungun



Tengar Merah



Mangrove Apple



Mangrove Trumpet

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Route 1 – What you can see on this trail

Migratory birds are the main attraction here in Sungei Buloh. Every year, thousands of migratory birds arrive at the Reserve in August/September from their breeding grounds in Russia, Far East Mongolia, North China, Japan and Korea. Some of these birds take a rest at Sungei Buloh before flying on to Indonesia, Australia and New Zealand. The rest stay here throughout the winter until March/April before they journey back to their breeding grounds in the Northern Hemisphere.

The **Common Redshank** (*Tringa totanus*) and the **Pacific Golden Plover** (*Pluvialis fulva*) are among the birds which make Sungei Buloh their winter home.

→ 1

Main Bridge

The route starts at the **Main Bridge** which crosses Sungei Buloh Besar. This is a great place for fish-watching.

You can also be sure to see large schools of the amazing **Banded Archerfish** (*Toxotes jaculatrix*) that can spit a jet of water to knock down insects into the water.

At moderate tide, the trees along the banks are crowded with various kinds of kingfishers eagerly hunting in the river. **Kingfishers** have large heads, dagger-like bills, compact bodies, and short legs and tails. They have attractive plumages, mostly in various hues of blue.

At the Main Bridge, look for the **Stork-billed Kingfisher** (*Pelargopsis capensis*). This is Singapore's largest kingfisher species and it has a large red bill which is great for seizing live fish from the river. The long-legged **Grey Heron** (*Ardea cinerea*), **Purple Heron** (*Ardea purpurea*), **Little Egret** (*Egretta garzetta*) and **Great Egret** (*Egretta alba*) stride about the shallower sand bars. Egrets are generally white birds and they are regular visitors here. You may come across a tree that appears white because of the large number of egrets standing on the tree branches.

The **White-breasted Waterhen** (*Amaurornis phoenicurus*) is often seen. It lives mainly in the freshwater marsh area and feeds on worms, insects and grass seeds. The crocodile has been spotted here too, basking on the shore.

→ 2

Island

As you leave the Main Bridge to enter the Reserve, walk towards the pond on your left. There is an island in the middle of the pond formed out of mangrove tree roots. Here, you might spot large Water Monitors basking, and Little Herons waiting motionless on roots near the water.

The **Smooth Otters** (*Lutrogale perspicillata*) have also been seen several times, playing on this island. These are agile swimmers. The otters can be observed to be hunting for fish near to this island, often causing fish to jump about.



1



Stork-billed Kingfisher



Pacific Golden Plover



White-breasted Waterhen



Grey Heron



Smooth Otter
(Photo by Steven Tor)



Purple Heron



Island

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→ 3

Main Hide (1A)

Before you start on the route, stop at **Main Hide (1A)** which faces the two main ponds. The largest hide in the Reserve with two-storey seating, this is a good place to observe migratory shorebirds during high tide times over weekends. The water level in the two ponds is adjusted so that at least one of the ponds has exposed mudflats for the shorebirds to rest and feed.

→ 4

Screen (1.2)

Stop at **Screen (1.2)** to take another closer peek at the migratory shorebirds.

→ 5

Platform 1

As you leave the Main Hide and turn left, the route takes you to two platforms. **Platform 1** is at the junction of Sungei Buloh Besar and Sungei Bilabong Buloh.

→ 6

Platform 2

Platform 2 is on the banks of Sungei Bilabong Buloh facing Pulau Buloh. Pulau Buloh has been left isolated from the rest of the Reserve so that the animals can have a quiet place of refuge. Here is another spot where you may see some **White-bellied Fish Eagles** (*Haliaeetus leucogaster*) fishing for their prey.

→ 7

Hide (1C)

Along the route, stop by **Hide (1C)**, a large, long hide. Being further away than the Main Hide, there is less traffic and so offers an undisturbed view of the shorebirds. The hide also provides a closer look at a clump of **Nipah Palm** (*Nypa fruticans*) and their flowers and fruits.

→ 8

Aerie Hide

The route also takes you via **Aerie Hide**, an 18-metre tall tower that offers panoramic views of the Reserve, Johor and the surrounding areas of Singapore. Besides enjoying the breeze, you might also spot trees festooned with white egrets.

→ 9

Freshwater Hide (2A)

On the way back, the route brings you past the closest **Freshwater Hide (2A)** to the Visitor Centre. Facing a pond filled with reeds and ringed by thick vegetation, you can spot herons, kingfishers, bitterns and other waterbirds. Smooth Otters have been seen here too.

We hope you have enjoyed your walk on this trail. For another intimate encounter with nature, embark on the walking trail to Bukit Timah Nature Reserve. To obtain another DIY trail-guide on a walking trail in one of Singapore's parks, visit www.nparks.gov.sg/eguides.



Yellow Bittern