

Sungei Buloh Wetland Reserve

Group 1

Group members

21. Fong Tsz Ying

22. Fung Tin Wai

23. Koo Ka Lai

24. Lee Yuen Yuen

25. Yim Chung Yeung

Content

- Background information of Sungei Buloh Wetland Reserve
- Plants observed in the field trip
- Animals observed in the field trip
- Compare with Hong Kong Wetland Park
- Reflection
- Discussion Time





Sungei Buloh = Bamboo River
(Malay language)

Background

- first opened as a Nature Park in 1993
- 2.02 km²
- includes mangroves, mudflats, ponds and forests





Plants

Plants

1. Giant Ginger



2. Bamboo: the world's tallest grass plant



Plants

3. Sea Holly: shape of leaves depends on concentration of salts



4. Great Morinda: used to treat cancer and hair loss





Tembusu Tree

5. Tembusu Tree

*Fagraea
fragrans*

- hardwood
- slow-growing
- evergreen

Native to Singapore

Leaves

- oval-shaped
- **light-green**

Flowers

- bloom twice a year
- creamy white (turn yellow with age)

Fruits

- tiny and round
- turn from **orange** to **red** as they ripen



5. Tembusu Tree

Iconic tree

Singapore five-dollar note

- To illustrate Singapore as a “Garden city”



as a metaphor

- the relationship between the state and the civil society in Singapore

Medicinal uses Bark: treat fever and dysentery (痢疾)

Leaves: treat severe diarrhoea



Awesome!!

6. Sea Poison Tree

Barringtonia asiatica native to mangrove

Leaves:

- Large
- egg-shaped
- shiny

Flowers:

- Night-blooming flowers
- puff ball of stamens with four small white petals

Fruits:

- Lantern-shape
- floats on water

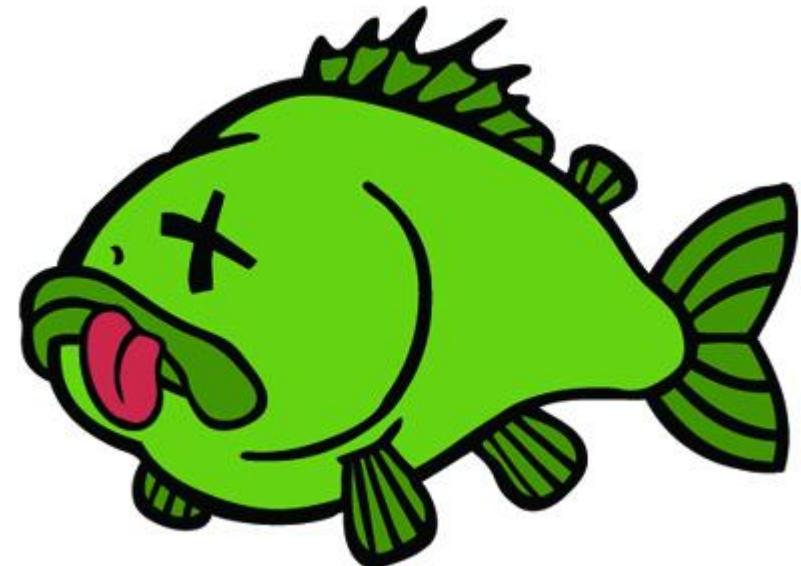


6. Sea Poison Tree

Status: Common in Singapore

Uses:

- poison, used to stun fish in freshwater streams
- floating seeds: used as fishing floats
- as a roadside tree
- traditional medicinal uses



7. Mangroves Apple

Sonneratia alba

Roots: cone-shaped

Flowers: - White
- open
- many

Fruits: - green, leathery
- a star-shaped b

No Durians
Without
Mangroves
Apple?



7. Mangroves Apple

Location: - exposed, soft and stable mudbanks

Uses: leaves - eaten raw or cooked
- used us as camel fodder

fruits - eaten by people

Taste like cheese!

Role: - provides food and shelter for small creatures and insect



Plant: Adapation

Plant: Adapation

Harsh Environment:

- low oxygen condition
- high salinity
- high water loss
- tidal inundation



Function of roots in Mangrove

- to provide support in unstable soils
- to withstand currents and storms
- gas exchange



Knee Root (膝狀根)

- roots rising above the ground
- enhance gas exchange in low oxygen area



Prop roots(支柱根)

- adventitious roots
- form from stem tissue
- visible roots on the stems just above the soil line
- **stilt roots (升高根)**

main function: increase structural stability of stem



More Photo of Prop roots (支柱根)



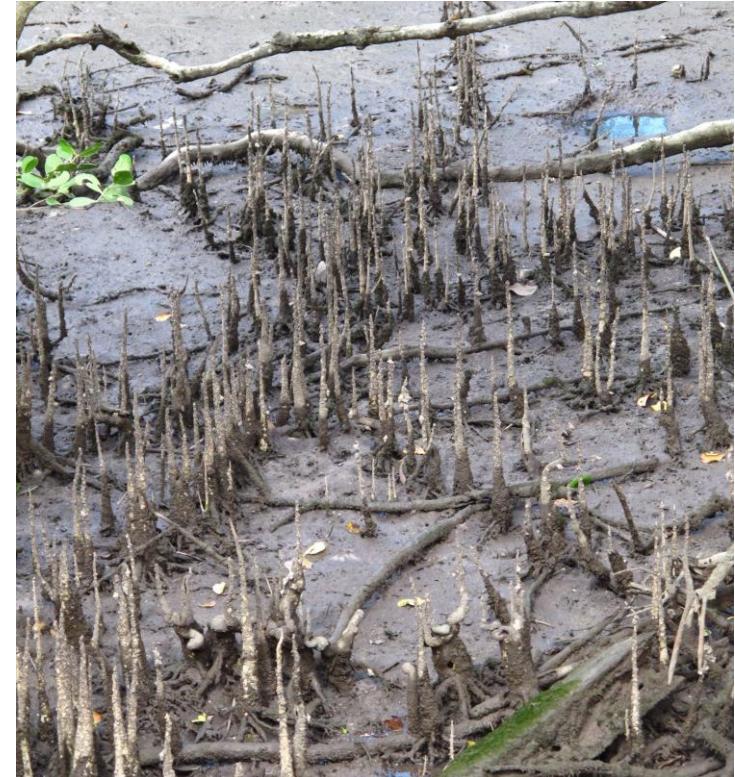
Buttress root (板根)

- roots grow out from the base of trunk
- to increase the **surface area** to **absorb nutrient** from soil
- to provide **additional support** to prevent the tree from falling



Cable roots (纜狀根)

- short pencil-like roots called **Pneumatophore** (出水通氣根)
- enhance gas-exchange above the surface
- have numerous lenticels
- example: Mangroves Apple



Animals

*Vertebrates
*Arthropods

Vertebrates---Mammals

Long-tailed macaque (crab-eating macaque)

- Habitat
- Appearance
- Role in habitat



Vertebrates---Mammals

Plantain squirrel

- Appearance : Greyish brown
- Habitat: Trees
- Eating habits: Fruits and nust
- Role in habitat

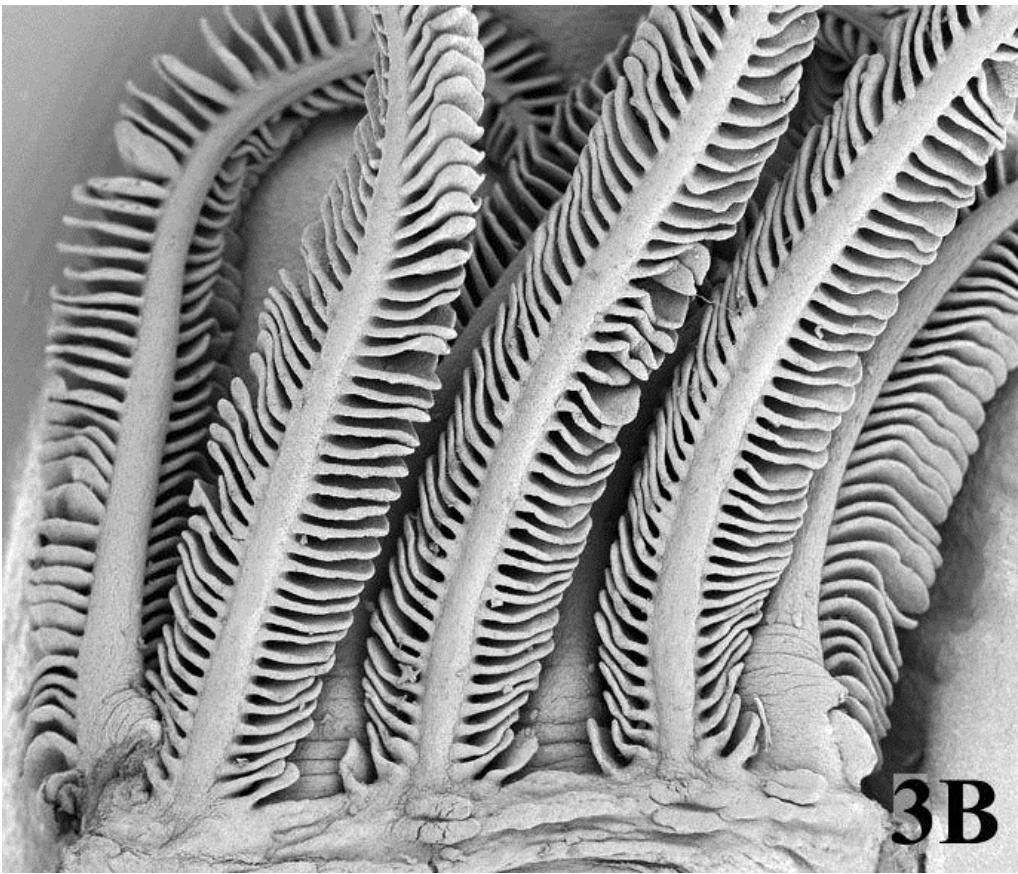
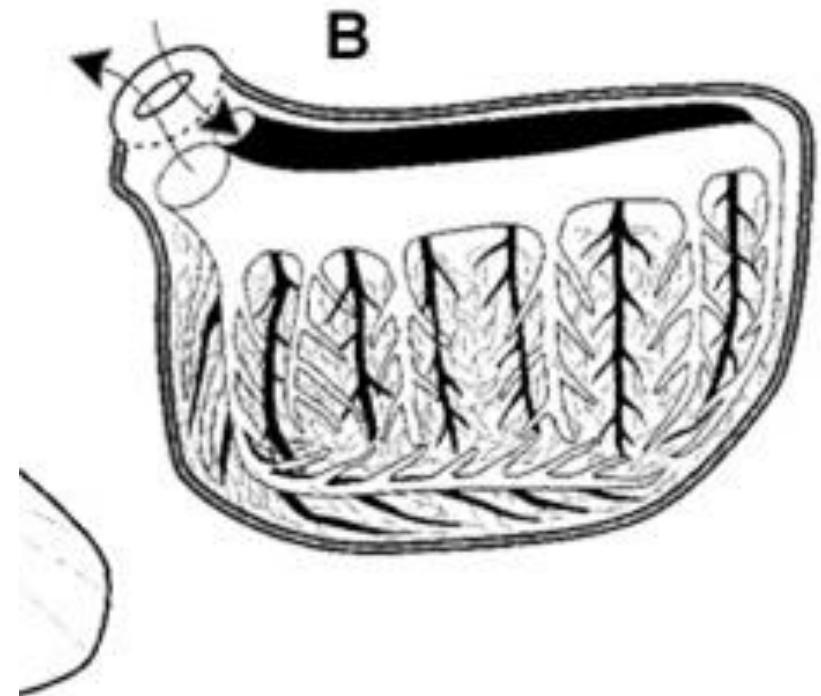


Vertebrates---Fish Gaint Mudskipper

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How do they breathe on land?





Graham J.B., 1997 (ed) – Air-breathing Fishes. Evolution, Diversity and Adaptation – Academic Press, San Diego California, 299 pp. [image] Retrieved 21st June, 2016, from <http://www.mudskipper.it/Bimodresp.html>

G. Kruitwagen, & H.P.M. Geurts., Gills of a fish, the mudskipper (*Periophthalmodon schlosseri*) taken with a Scanning Electron Microscope (SEM) Imaging. [image] Retrieved 21st June, 2016, from <https://s-media-cache-ak0.pinimg.com/736x/7a/c2/47/7a244e940b4b5512cac7962f1eca32a.jpg>

3B

Vertebrates---Birds

Storkbilled Kingfishers vs Collared Kingfishers



J.M.Garg. (2006). *Stork-billed Kingfisher Pelargopsis capensis* in Kolkata, West Bengal, India. Wikipedia. [image] Retrieved 21st June 2016, from https://commons.wikimedia.org/wiki/File:Stork-billed_Kingfisher_1_IMG_7659.jpg



J.J. Harrison. (2011). *Collared Kingfisher (Todiramphus chloris)*, Pak Thale, Ban Laem, Phetchaburi, Thailand. Wikipedia. [image] Retrieved 21st June 2016, from https://commons.wikimedia.org/wiki/File:Todiramphus_chloris_2_Ban_Laem_Pak_Bia.jpg

Vertebrates---

Birds

Grey Heron

vs

Purple Heron



JJ .Harrison. (2011). *Grey Heron (Ardea cinerea)*, Pak Thale, Ban Laem, Phetchaburi, Thailand. Wikipedia. [image] Retrieved 21st June,2016, from https://commons.wikimedia.org/wiki/File:Ardea_cinerea_-_Pak_Thale.jpg

Yathin S Krishnappa. (2010). *Purple heron in Kabini*. Wikipedia. [image] Retrieved 21st June,2016, from https://commons.wikimedia.org/wiki/File:2010_kabini-purple-heron.jpg

Vertebrates---Amphibian (Common tree frog)

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- Appearance:
4 dark brown lines
- Habitat:
Low vegetation
- Colouration Changes



Vertebrates---Reptile

Malayan Water Monitor Lizard

- Habitat:
Mangroves
- Hunting Behaviors
- Threats



Arthropods---Crustacean

Fiddler crab vs Tree climbing crab

- Appearance
- Behaviors
- Eating habits



Arthropods---Crustacean

Horseshoe crab

- Eating habits
- Body structures
- eyes
- gills



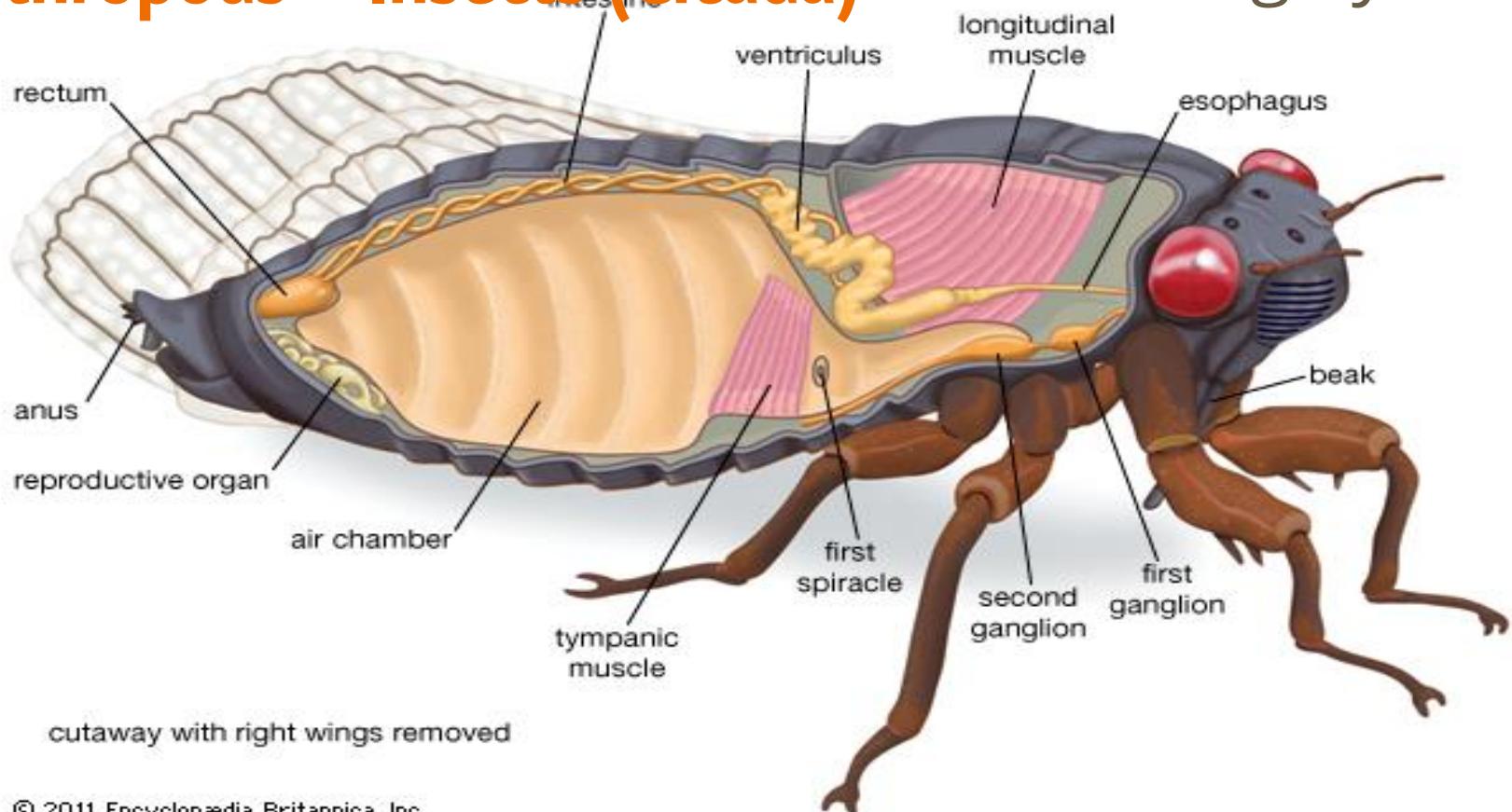
Amada44. (2011). *Carcinoscorpius rotundicauda* mangrove horseshoe crab. Wikipedia. [image] Retrieved 21st June, 2016, from [https://commons.wikimedia.org/wiki/File:Carcinoscorpius_rotundicauda_\(mangrove_horseshoe_crab\).jpg](https://commons.wikimedia.org/wiki/File:Carcinoscorpius_rotundicauda_(mangrove_horseshoe_crab).jpg)



LISTEN!!!

Arthropods---Insects (Cicada)

-Sounding System



Arthropods---Insects (Cicada)

- Life Cycle (Magicicada)

- In Society:

- as food

- as medicine



Bruce Marlin. (2003). *Tibicen linnei* English: Annual cicada. Wikipedia. [image]. Retrieved 213 June, 2016, from https://commons.wikimedia.org/wiki/File:Tibicen_linnei.jpg

Comparison

Compare with Hong Kong Wetland Park



- Open in 2002
- Park Size: 202 hectares
- Opening Time: 7am to 7pm
- Smoke-free park



- Open in 2006
- Park Size: 61-hectares
- Opening Time: 10:00am to 5:00pm
(Closed on Tuesdays)
- Statutory smoke-free area

Sungei Buloh Wetland Reserve and Wetland Park

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Map of Hong Kong Wetland Park

Sungei Buloh Wetland Reserve

As a nature **RESERVE**

- admission fee: FREE

Hong Kong Wetland Park

As a **PARK and Attraction**

- admission fee: standard \$30

Special Souvenir for Multi-entry



Sungei Buloh Wetland Reserve



center without air-conditioners

Hong Kong Wetland Park



center with air-conditioners and restaurants

Sungei Buloh Wetland Reserve



Fishpond Hide
without
windows and
fans

Hong Kong Wetland Park



Fishpond Hide with glass windows and fans

Sungei Buloh Wetland Reserve



mostly mud road and wooden bridge

Hong Kong Wetland Park



mostly concrete road

Sungei Buloh Wetland Reserve



hand painting

Hong Kong Wetland Park



stickers

Sungei Buloh Wetland Reserve



clear natural mudflat

Hong Kong Wetland Park



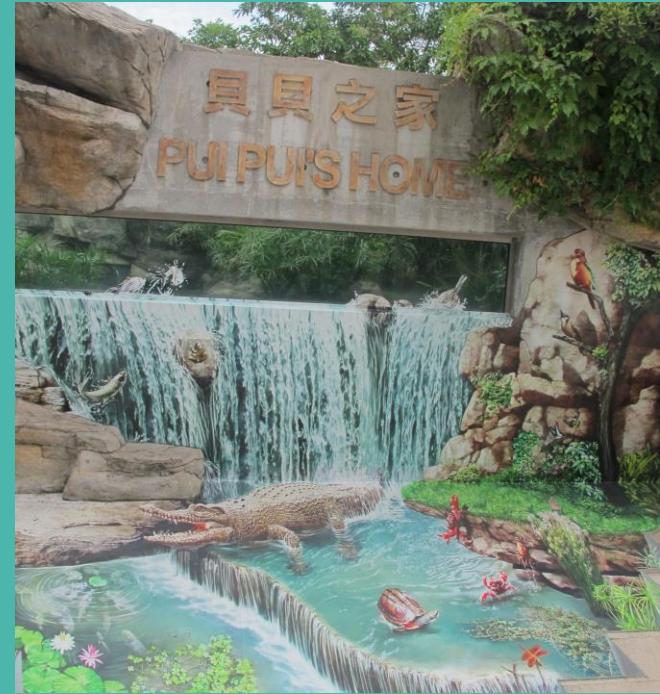
mudflat with pipe

Sungei Buloh Wetland Reserve



free to swim

Hong Kong Wetland Park



kept in “home”

Artifical facilities of Hong Kong Wetland Park



Children playground



Restaurant



less artifical facilities

- no air-conditionated areas
- more natural
- no specific area assigned to animals



- more artifical facilities

- imformation boards
- telescopes
- bird hides
- children playground
- restaurants
- centers with air-conditioner

Visitor Center of Hong Kong Wetland Park

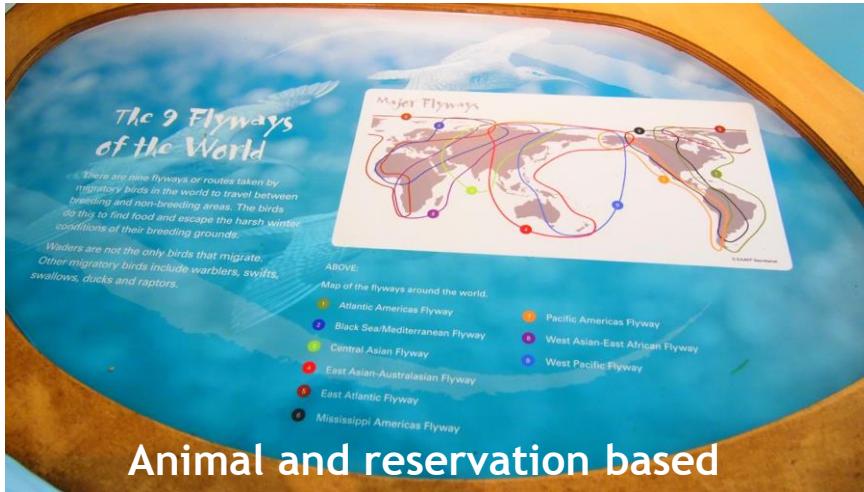
More educational

- Facilities for seminars, conferences
 - Museum
 - Theater
 - Multi-function room
- Educational activities
 - exhibition
 - public lecture
 - workshop
 - classroom
 - guided tour of different themes
 - cooperation with schools



Sungei Buloh Wetland Reserve

- As a important site for **migratory birds**
- Focus on the interaction between **human and environment**



Hong Kong Wetland Park

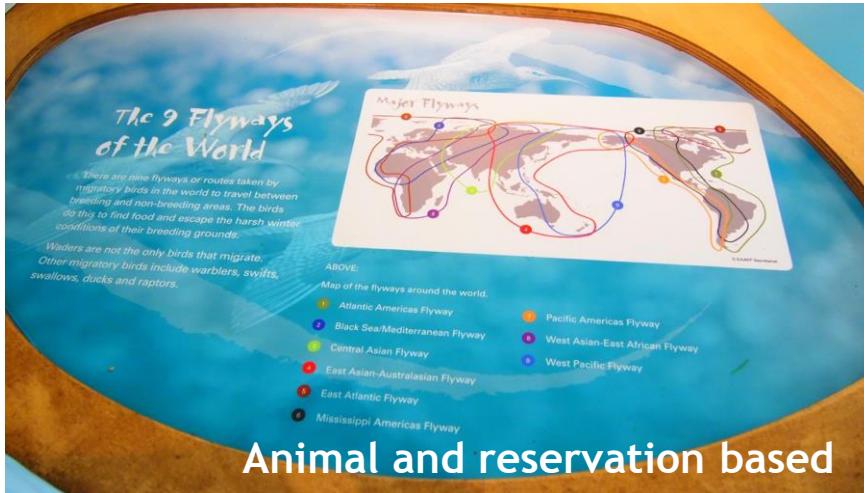
- To create a attraction of **international status (國際級)** for the **visitors** and general public
- Focus on the interaction between **technology and visitors**



Human and educational based

Sungei Buloh Wetland Reserve

- As a important site for **migratory birds**
- Focus on the interaction between **human and environment**



Hong Kong Wetland Park

- To raise **public awareness**
- To **compensate** for the ecological lost due to Tin Shui Wai New Town development



Reflection

Singapore vs Hong Kong

Reflection: 1- Visitors

Singapore

- Nature
- Conservation



Hong Kong

- Leisure
- Entertainment



Reflection: 2-Urban Planning

Singapore

- greener urban planning



Hong Kong

- more cramped and concrete urban spaces and many "stone wall trees"



grab your fork

Reflection: 2-Urban Planning

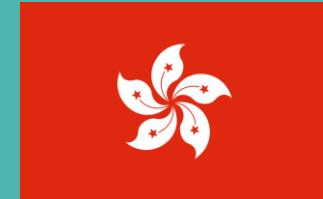
Singapore

- a clear vision set by Government- creating a green and clean city
- strong and continuous commitment from the government



Hong Kong

- neither an adopted vision nor a clear policy for the greening





Discussion

Questions for you



1. Which wetland do you think is better, why?
2. What can be done to improve Sungei Buloh Wetland Reserve? How about Hong Kong Wetland Park?



Thank you!