

紅樹林群落 Mangrove Communities

潮間帶泛指受潮汐漲退影響的海岸地區。由於環境受潮汐影響，這些地方會不時暴露於陽光中或給海水淹浸。香港有多種潮間帶的環境，如紅樹林、石灘、沙灘、泥灘和海草床等。

一般來說，由於潮間帶環境惡劣，例如高鹽、低溶氧量、海浪沖擊和乾涸等，在這種環境生活並不容易。在潮間帶生存的生物，會發展出各種適應環境的特徵。

Intertidal habitats are areas that are exposed and submerged periodically as the tide comes and goes. A variety of intertidal wetlands can be found in Hong Kong. These include mangroves, rocky shores, sandy shores, mudflats and seagrass beds.

Generally, wildlife inhabiting these areas develops special adaptations to cope with various environmental stresses which include high salinity, low oxygen level, wave action and desiccation (drying out).



紅樹林是潮間帶獨有的生態環境
Mangrove is an unique ecosystem in intertidal zone

紅樹林的適應力 Adaptation of Mangroves

紅樹是生長於熱帶和亞熱帶的潮間帶河口鹹淡水交界以及隱蔽海岸地方的植物。這種環境泥土流動不穩並缺乏氧氣、水中鹽份隨淡水供應而變化。紅樹必需有不同的適應能力，方能生長，例如：

- 直立式的出水通氣根和膝狀根能幫助紅樹在海水淹浸、並含有緊密幼細沉澱物的缺氧淤泥中生長
- 支柱根、板根和橫向伸展的攢狀根能讓他們生長在不穩定的底土層
- 部份紅樹會利用胎萌結構(胚軸)，以增加繁殖的成功率
- 為減低鹽份過高對植株造成的不良影響，部份紅樹會把過多的鹽份透過葉片的鹽腺排出，有些則會以落葉形式排走鹽份，或根部拒鹽等適應方法
- 部份紅樹會長出肉質的葉，以及葉面角質革質來儲存淡水，以抵抗周圍看似濕潤卻是缺水的高鹽環境



出水通氣根
Pneumatophores



膝狀根
Knee-joints



支柱根
Prop roots



板根
Buttress roots

Mangroves are plants that are commonly found in brackish water in tropical and subtropical regions which include inter-tidal river estuaries and sheltered coasts. Here, the substratum is unstable and oxygen deficient. Mangrove has to cope with the physiologically dry conditions due to fluctuating supply of freshwater.

- Pneumatophores and knee-joints with numerous lenticels enable the mangrove roots to breathe in submerged anoxia condition for which the substratum is formed by compact fine sediments;
- Prop roots (or stilt roots), buttress roots and cable roots help mangroves to anchor onto the unstable substratum;
- Some mangroves produce vivipary structures (droppers) to increase the chance of successful reproduction;
- Some mangroves excrete salts through salt glands on their leaves, while others shed senile leaves in which the excess salt is stored and removed as the leaves dropped, or prevent salt absorption by root;
- Some mangroves develop fleshy leaves on with thick cuticle, to store water or to prevent water loss so as to withstand the physically wet but physiologically dry saline environment.



秋茄樹利用胎萌方式，生長出胚軸，當胚軸掉進水中，漂流至適合的土層，便可迅速生長
Dropper of *Kandelia obovata* formed by viviparous reproduction which mangrove seedlings can grow and establish immediately once they reach a suitable substratum



桐花樹葉上的佈滿鹽結晶
Salt crystals could be found on the leaves of *Aegiceras corniculatum*



銀葉樹的種子可浮於水面
The fruits of *Heritiera littoralis* can float on water

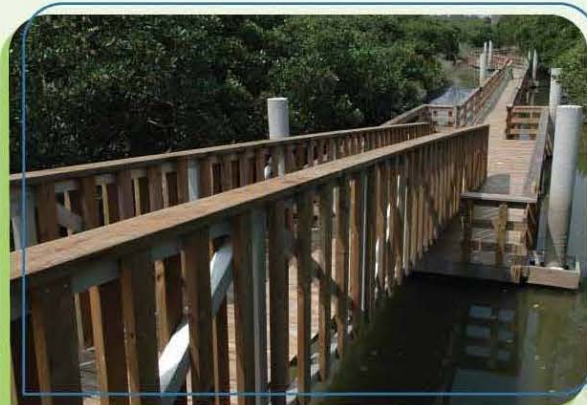
香港紅樹的品種 Mangroves in Hong Kong

全球有超過60種紅樹，而香港記錄了其中8種，包括鹵蕨、桐花樹、海欖雌、木欖、海漆、銀葉樹、秋茄樹和欖李。香港的紅樹林分佈甚廣，散佈於西貢、吐露港和大嶼山的岸邊，而米埔后海灣拉姆薩爾濕地可找到香港最大片的紅樹林。

當你漫步香港濕地公園的紅樹林浮橋，可以找到其中四種紅樹，它們是鹵蕨、桐花樹、木欖和秋茄樹。

There are over 60 species of mangroves worldwide and 8 of them can be found in Hong Kong. They are *Acrostichum aureum*, *Aegiceras corniculatum*, *Avicennia marina*, *Bruguiera gymnorrhiza*, *Excoecaria agallocha*, *Heritiera littoralis*, *Kandelia obovata* and *Lumnitzera racemosa*. Mangroves are widely distributed along coast of Sai Kung, Tolo harbour and Lantau Island. The largest mangrove community is found in the Mai Po Inner Deep Bay Ramsar Site.

While walking along the Mangrove Boardwalk in the Hong Kong Wetland Park, you can observe four mangrove species. They are *Acrostichum aureum*, *Aegiceras corniculatum*, *Bruguiera gymnorrhiza* and *Kandelia obovata*.



香港濕地公園的紅樹林浮橋讓訪客能近距離觀察紅樹林群落的動植物

Mangrove Boardwalk in the Hong Kong Wetland Park enables visitors to observe the mangrove communities closely

■ 生活在紅樹林的潮間帶生物 Inter-tidal Organisms Live in Mangrove Habitats

招潮蟹 Fiddler Crabs

潮間帶有一些很有趣的生物——招潮蟹。雄性的招潮蟹有一對大小不一的螯（鉗），牠們揮舞大螯，以吸引雌性、打架及保護家園；而雌性的招潮蟹有兩隻小螯。牠們不斷以小螯把淤泥泥粒送到口器，淘取有機碎屑。

在潮退時，泥灘上有很多小洞穴，這些都是招潮蟹的藏身之所，能幫助牠們逃避敵人及抵禦潮間帶的惡劣環境。另一方面，這些洞穴有助將氧氣帶到紅樹林的土層，加速植物的分解，對於養份的循環也十分重要。

香港共有6種招潮蟹。在香港濕地公園的紅樹林浮橋兩側，可找到其中一種，就是弧邊招潮蟹。另外，大家亦可以在香港濕地展覽廊，仔細觀察牠們。

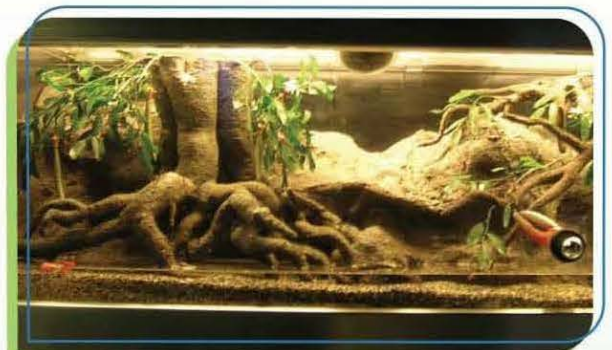
Fiddler crabs are distinctive crustaceans that are found in inter-tidal zone. The male fiddler crabs possess an enlarged claw that moves up and down for attracting females, to fight and to protect their home. The female fiddler crabs possess two small claws. They use the small claws to pass tiny mud balls to their complex mouthparts to separate the organic detritus as food.

They usually dig burrows in the muddy substratum. The burrows serve as refuges, which protect them from predators and help them to cope the environmental stresses. On the other hand, these burrows also enhance oxygen content in substratum and increase the rate of decomposition of organic debris and help in nutrients recycling.

There are 6 species of fiddler crab recorded in Hong Kong. Visitors may find the *Uca arcuata* feeding along the banks of watercourse near the Mangrove Boardwalk. In addition, they can also take a closer look at the fiddler crabs in Hong Kong Wetlands Gallery.



弧邊招潮蟹
Fiddler crab (*Uca arcuata*)



遊客可在香港濕地公園的香港濕地展覽廊仔細觀察招潮蟹的特徵
Visitors can take a closer look at fiddler crab at Hong Kong Wetlands Gallery in Visitor Centre of the Hong Kong Wetland Park

彈塗魚 Mudskippers

活躍於泥灘及水邊的彈塗魚，經常被誤以為是兩棲動物。其實，牠們跟其他魚類一樣，以鰓呼吸和以魚鰭活動。牠們經常在濕泥上滾動，是為了讓皮膚保持濕潤以幫助呼吸。牠們常常鼓起兩腮，那是因為牠們會儲存水份在腮室，讓兩鰓在離開水時，仍能如常地吸取當中的氧氣。另一方面牠們有一對大眼睛長在頭上，方便洞察來自上空的敵人，加上強而有力的胸鰭和尾部，讓牠們能夠敏捷地逃走。

香港有三種彈塗魚，分別是彈塗魚、大彈塗魚和青彈塗魚。其中，在香港濕地公園的紅樹林浮橋可以找到彈塗魚及大彈塗魚。相對大彈塗魚，彈塗魚的體形較細小，是肉食動物。而大彈塗魚主要攝食微細藻類及腐殖質為生。



大彈塗魚
Bluespotted Mud Hopper (*Boleophthalmus pectinirostris*)



彈塗魚
Common Mudskipper (*Periophthalmus modestus*)

As mudskippers are capable of staying on wet muddy substratum or water edge, they are usually misconceived as amphibians. In fact, they breathe with gills and possess fins that are same as other fishes. They usually roll on the wet mud to keep their skins moist for breathing. When they leave water, they store water in their enlarged gill chambers, so that they can continue to breathe through the gills. They have a pair of big eyes on top of their head, muscular pectoral fin and tail. These body structures allow them to dart away when their predators approach from the air.

There are three species of mudskippers in Hong Kong, namely the Common Mudskipper (*Periophthalmus modestus*), Bluespotted Mud Hopper (*Boleophthalmus pectinirostris*) and the Blue Mud Hopper (*Scartelaos viridis*). In the Hong Kong Wetland Park, you can find the Common Mudskipper and the Bluespotted Mud Hopper at the Mangrove Boardwalk. Common Mudskipper is carnivore and Bluespotted Mud Hopper feed on algae and humus.

紅樹林群落所面對的威脅

Threats to Mangrove Communities

過去二十年，大片的紅樹林在香港相繼消失，其主要原因是都市發展、旅遊和水產養殖。此外，工業和家居排放到河流的污染物，亦嚴重威脅居住在紅樹林的潮間帶生物。

In Hong Kong, vast areas of mangroves have been destroyed or damaged due to urban development, tourism and aquaculture in the past 20 years. Pollutants from industries and household discharge also threaten the inter-tidal organisms in mangroves.

我們能做甚麼？

What Can We Do?

善用濕地資源是保育中最重要的部份。在香港，任何在紅樹林的發展都需經過公眾諮詢或進行環境影響評估。作為香港市民，我們也要為保育生態環境出一分力，在欣賞大自然的同時，減低對它們所造成的干擾。

Sustainability of wetland habitats depend on how wisely we use our natural resources. In Hong Kong, public consultation and Ecological Impact Assessment are required for any development in mangrove habitat. As responsible citizens, we can voice our concerns for conserving this valuable ecosystem, and minimise our disturbance during visits.



紅樹林被砍伐
Felled mangrove



都市發展會對鄰近的紅樹林構成影響
Urban development causes influence to mangrove habitats



交通發展對紅樹林生境構成壓力
The demand of transportation exerts pressure to mangrove habitats

