

## MEDIA FACTSHEET

### Keppel Discovery Wetlands

The Keppel Discovery Wetlands is a 1.8-hectare restoration project of the forest wetland ecosystem that was historically found in the vicinity of the Singapore Botanic Gardens. It encompasses a variety of freshwater forest wetland habitats, created through ecological design and the establishment of a carefully curated plant collection consisting of over 200 plant species. When it opens in early 2017, it will be the most accessible freshwater forest wetland in Singapore for members of public. The habitats in the Keppel Discovery Wetlands will be complemented by trails and boardwalks for an exciting and immersive outdoor learning experience for visitors. Features of the Wetlands will include the Orchid Islands, Botanists' Boardwalk, Pulau Marsh and Discovery Trail.






## Orchid Islands



Singapore has some 228 species of native orchids, of which 170 are considered extinct, 50 are critically endangered, three are vulnerable and only five are common. Most of our orchids have disappeared due to deforestation for the cultivation of plantation crops in the 19th century. The Gardens has historically been a pioneer in the cultivation and hybridisation of orchid varieties, and is now at the forefront of NParks' efforts to propagate threatened orchid species and reintroduce extinct ones.

The Orchid Islands will showcase a large number of native orchids, many of which have been conserved through NParks' native orchid conservation programme. This is the first time that the public will be able to admire the forms and colours displayed by such a wide variety of native orchids, in their natural habitat.

## Orchid species that can be seen at the Orchid Islands

No.	Picture	Tree species
1.	<p>Deer Antlered Phalaenopsis (<i>Phalaenopsis cornu-cervi</i>)</p>  <p>Credit: David Lim, National Parks Board</p>	<p>The Deer Antlered Phalaenopsis is extinct in Singapore, but has been successfully reintroduced through the Orchid Conservation Programme.</p> <p>The flowers of this beautiful orchid come in a variety of colours, from dark cinnamon-red to yellow and pale green. The stalk on which flowers are borne resembles deer antlers.</p>
2.	<p>Finlayson's Cymbidium (<i>Cymbidium finlaysonianum</i>)</p>  <p>Credit: Ang Wee Foong, National Parks Board</p>	<p>Finlayson's Cymbidium is critically endangered in Singapore, but has been successfully reintroduced on roadside trees and in parks around Singapore.</p> <p>This epiphytic orchid is adapted to getting its nutrients from leaf-litter. Its leaves form a basket-like structure, trapping dead leaves that fall from the canopy.</p> <p>The orchid has fragrant flowers carried on a pendulous stalk that can reach up to 90 cm in length.</p>
3.	<p>Nun Orchid (<i>Phaius tankervilleae</i>)</p>  <p>Credit: Ang Wee Foong, National Parks Board</p>	<p>The Nun Orchid is extinct in Singapore, but still survives in freshwater swamp forests in neighbouring countries.</p> <p>It grows on the Orchid Islands in this wetland and can be identified by its reddish-brown petals and sepals and a bell-shaped lip. The petals and sepals form a hood, resembling a nun's wimple.</p>



## Botanists' Boardwalk





The UNESCO World Heritage Site status of the Singapore Botanic Gardens today owes much to the historic discoveries made by the Gardens' earliest botanists such as Henry Ridley who was the first Scientific Director of the Gardens from 1888-1912, EJH Corner who was the assistant director from 1929–1945 and Nathaniel Cantley, the superintendant from 1880–1888.


Henry Ridley's research on rubber had led to his discovery and development of a more efficient method of rubber-tapping without killing the tree, leading to a worldwide rubber boom. EJH Corner pioneered canopy ecology. In order to collect and study items like seeds, fruit, ferns and treetops as high as 50 metres, he trained monkeys to climb up and collect them for him. During his time as Superintendent of the Gardens, Nathaniel Cantley assumed the role of propagating trees for planting in Singapore's streets, parks and nature areas. A classic street tree introduced during this time was the Rain Tree (*Samanea saman*). Raised from a seed in the Gardens in 1882, this species is now a common sight along roads across the island.

They made frequent expeditions to study the plants growing in various localities and habitats throughout Southeast Asia. Venturing deep into the swamps of Borneo, across the mountain ranges of the Malay Peninsula and further afield, they brought back plants to study in order to gain a better understanding about the ecology of the region. They also recorded and left behind a rich trove of writings about their travels.

For the first time in the history of the Gardens, these journeys of discovery will be brought to life at the Botanists' Boardwalk, through signs installed along the 50 m long boardwalk with information such as how Corner trained monkeys to collect flowers and fruits for him, and how he barely escaped a flood as he travelled up the Sedili river in Johor. The landscape around the boardwalk will feature various plants that have been collected from around our region and named in honour of our botanical pioneers.

### Plant species that can be found at the Botanists' Boardwalk

No.	Picture	Species
1.	<p>Ridley's Staghorn Fern (<i>Platycterium ridleyi</i>)</p>  <p>Credit: Ang Wee Foong, National Parks Board</p>	<p>Ridley's Staghorn Fern is named after Henry Ridley..</p> <p>Like other <i>Platycterium</i> species, it produces two types of fronds. Fronds that wrap around the base protect the roots from drying out, whilst the upright fronds bear reproductive spores. This species was first collected from trees in Bukit Timah Nature Reserve, and was first described by Ridley. Ridley's Staghorn Fern is now extinct in the wild.</p>
2.	<p>Cantley's Memecylon (<i>Memecylon cantleyi</i>)</p>  <p>Credit: Ang Wee Foong, National Parks Board</p>	<p>Named after former Gardens' superintendent Nathaniel Cantley, the Cantley's Memecylon was first recorded and described from specimens found in the Gardens in 1907.</p> <p>A previously unknown population of Cantley's Memecylon was found in the Central Catchment Nature Reserve in 2014. Prior to this discovery, the Singapore Botanic Gardens' Rain Forest and Learning Forest were thought to be the last refuge of this species in Singapore.</p>

3.	<p><i>Freycinetia corneri</i></p>  <p>Credit: Ang Wee Foong, National Parks Board</p>	<p>EJH Corner was not fond of naming species after people. Nevertheless, dozens of species were named after him, including the <i>Freycinetia corneri</i>, a member of the Pandan family. This species has long, leathery pleated leaves. Aerial roots along the stem allow the plant to attach themselves to trees.</p>
----	--	--

National Archives of Singapore





## Pulai Marsh



The Pulai Marsh is the Singapore Botanic Gardens' pioneering attempt at re-creating a freshwater forest wetland. Historic maps of the area from as far back as the 1860s showed that there was formerly a stream running through the area. Staff of the Gardens who surveyed the site were able to catalogue many plant species that are associated with freshwater forest wetlands, indicating that the entire area was once a wetland forest habitat. One of the trees catalogued is the Marsh Pulai, a magnificent tree with swollen buttresses that grows in permanently flooded ground, and gives the Pulai Marsh its name. These findings gave the confidence to embark on this project for the restoration of the freshwater swamp forest habitat.

Apart from rainfall, the Pulai Marsh is fed by a natural spring, which contributes enough water to fill one Olympic-sized swimming pool every month. This water supports a rich variety of plants and wildlife and eventually feeds into the Gardens' Swan Lake.

### Plant and animal species that can be found at Pulau Marsh

No.	Picture	Species
1.	<p>Marsh Pulai (<i>Alstonia spatulata</i>)</p>  <p>Credit: Ang Wee Foong, National Parks Board</p>	<p><b>Species</b></p> <p>The Marsh Pulai commonly inhabits freshwater swamp forests. It grows up to 25 m tall, and has a trunk that is fluted at the bottom, forming buttresses at the base.</p>
2.	<p>Red-legged Crake (<i>Rallina fasciata</i>)</p>  <p>Credit: Francis Yap</p>	<p>The Red-legged Crake can be found year-round in Singapore but are more easily spotted from December to February, as migrants arrive to escape the northern winter. They may be found in Sungei Buloh Wetland Reserve, Pulau Ubin and around the Singapore Botanic Gardens, where they favour wet areas under dense vegetation.</p>
3.	<p>Black Marsh Terrapin (<i>Siebenrockiella crassicollis</i>)</p>	<p>The Black Marsh Terrapin is aquatic, preferring still water bodies that are densely vegetated. It is carnivorous and has a diet of worms, snails, shrimp, amphibians and other small</p>





Credit: Marcus Chua


creatures. In Singapore, this species can be found around Seletar Reservoir and on Pulau Ubin.



# National Archives of Singapore

## Discovery Trail

The Discovery Trail brings visitors through the Orchid Islands, Botanists' Boardwalk and Pulau Marsh, where they will be able to see and be educated about plants that grow in frequently-flooded, inaccessible places. By walking the trail, visitors will be following EJH Corner's botanical expedition as he travelled up the Sedili river in Johor.

### Plant species that can be found along the Discovery Trail

No.	Picture	Tree species
1.	<p>Common Putat (<i>Barringtonia racemosa</i>)</p>  <p>Credit: Ang Wee Foong, National Parks Board</p>	<p>The Common Putat grows up to 27 m and grows in swampy areas next to rivers. These trees bear bright pink inflorescences that develop into pear-shaped fruits. Its fruits have a layer of spongy flesh that allows the fruit to float, carrying its seeds along the river.</p>
2.	<p><i>Pandanus atrocarpus</i></p>	<p><i>Pandanus atrocarpus</i> is a thorny branched tree that can grow up to 20 m tall! This pandan grows in swampy areas with muddy ground and produces prop roots that prevent these tall plants from falling over.</p>

	 <p>Credit: Ang Wee Foong, National Parks Board</p>	
<p>3.</p>	<p>Penarahan Pianggu (<i>Horsfieldia irya</i>)</p>  <p>Credit: Ang Wee Foong, National Parks Board</p>	<p>Penarahan Pianggu is a tall tree, reaching up to 30 m in height and produces clusters of orange flowers. It can tolerate waterlogged soil and grows in swampy or riverine areas. The fruits of Penarahan Pianggu a valuable source of food for monkeys and hornbills.</p>

Nat es of Singapore