



A Field Guide to the  
**Plants** of  
**MacRitchie**

Ferns and Lycophytes





# MacRitchie Reservoir Park



## Introduction

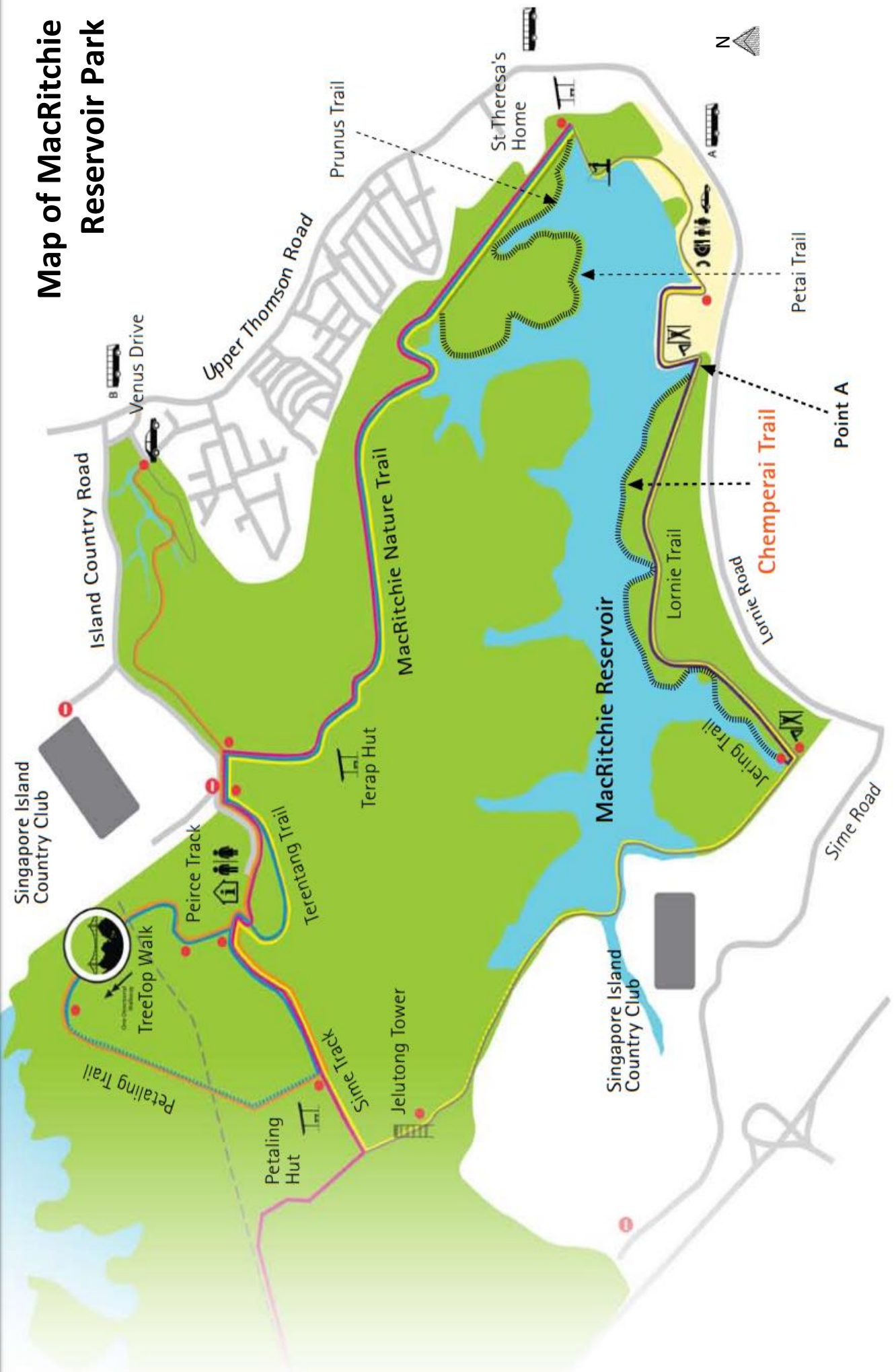
Completed in 1867, MacRitchie Reservoir Park was Singapore's first reservoir to supply water for the growing population of the British trading port. Originally named 'Impounding Reservoir', the reservoir was renamed after James MacRitchie in 1922, the Municipal Engineer of Singapore from 1883 to 1895, to commemorate his achievement of repairing the water supply and expanding the reservoir.

MacRitchie Reservoir Park was opened in 1967, now, it is a 12-hectare nature park, rich in biodiversity, and a very popular destination for nature and sports enthusiasts for activities like jogging, taichi, canoeing, as well as nature and lifestyle photography such as for social media and weddings.

There are 12 trails spread throughout the park. Each has their unique flora and fauna waiting for curious eyes to discover. Most of the trails are designed to blend into the natural surroundings. They range from unpaved road, covered with leaf litter or wooden boardwalks winding beneath the canopy.

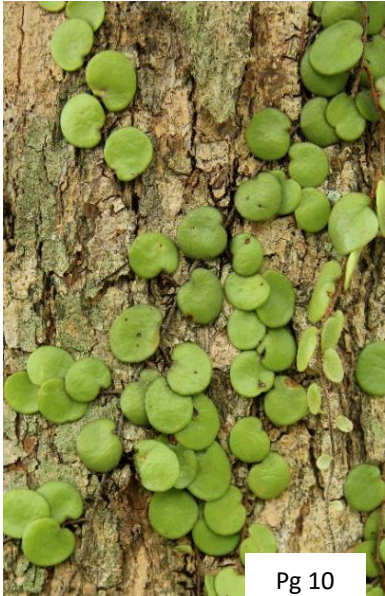
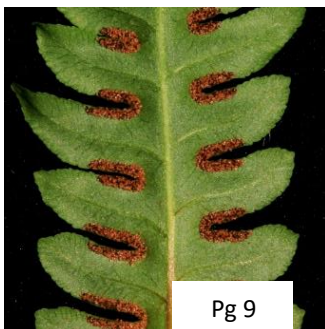
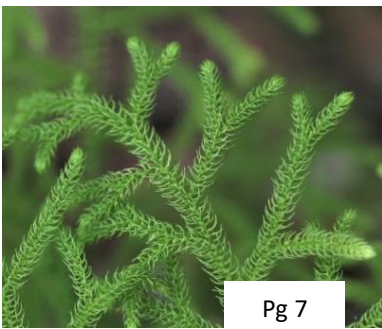


# Map of MacRitchie Reservoir Park

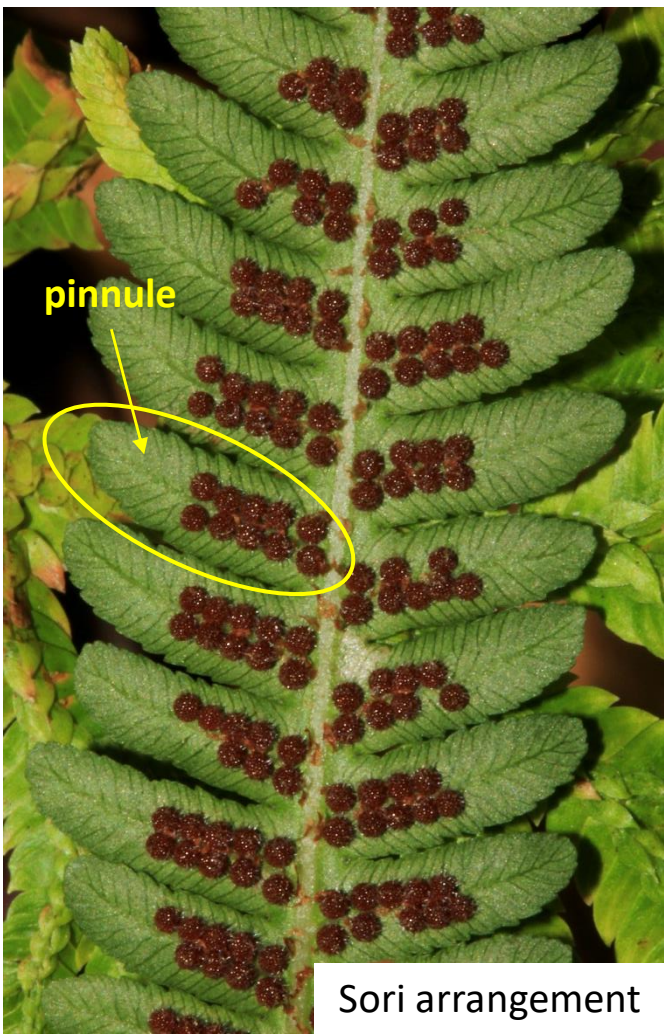




# Content Page







Sori arrangement



## *Alsophila latebrosa*

Tree Fern



Trunk

**Species Name:** *Alsophila latebrosa*

**Family:** Cyatheaceae

**Common Name:** Tree Fern

**Distribution:** South Yunan to West and Central  
Malesia

**Conservation Status:** Native to Singapore  
(Vulnerable)

*Alsophila latebrosa* or Tree Fern can grow up to 4 m tall with a single trunk. The fronds are bipinnate and can reach a length of 2 m. The sori<sup>[1]</sup> are round, borne on the underside of each pinnule<sup>[2]</sup>.

Tree ferns can be found growing along the forest margins, open areas, in lowlands or up in the mountains.





Sori arrangement



## *Asplenium longissimum* Spleenwort



New frond

**Species Name:** *Asplenium longissimum*

**Family:** Aspleniaceae

**Common Name:** Spleenwort

**Distribution:** Chagos Islands, Assam to West and Central Malesia

**Conservation Status:** Native to Singapore (Common)

*Asplenium longissimum* or Spleenwort is a terrestrial fern with long fronds that can grow up to 1-2 m in length. The pinnae<sup>[3]</sup> has a pointed leaf tip with toothed leaf margin. The sori<sup>[1]</sup> are linear and slightly curved, about 1 cm long, found on the underside of the pinnae<sup>[3]</sup>.

Spleenworts can be found under trees and in moist shaded areas.





Sori arrangement



New fronds



Young plant



# *Asplenium nidus*

Bird's Nest Fern



**Species Name:** *Asplenium nidus*

**Family:** Aspleniaceae

**Common Name:** Bird's Nest Fern

**Distribution:** Malesia to Northern Australia

**Conservation Status:** Native to Singapore (Common)

*Asplenium nidus* or Bird's Nest Fern has a rosette<sup>[4]</sup> growth form. Rain water, dead leaves and other debris are collected in the rosette and become a source of water and nutrients for the fern. The fronds have a slightly wavy edge and averages about 1.5 m long and 0.2 m wide or more. The sori<sup>[1]</sup> are linear, found on the underside of the spore-bearing fronds.

Small animals like bats and owls can be found resting on the underside of the Bird's Nest Fern. The Bird's Nest Ferns can grow both as an epiphyte and on the ground in humid, shaded conditions.





New frond



Young frond

# *Blechnopsis orientalis*

## Centipede Fern



**Species Name:** *Blechnopsis orientalis*  
**Family:** Blechnaceae  
**Common Name:** Centipede Fern  
**Distribution:** Tropical and Subtropical Asia to Pacific  
**Conservation Status:** Native to Singapore (Common)

The fronds of *Blechnopsis orientalis* or Centipede Fern can grow to 2 m long and 0.6 m wide. New fronds emerge reddish, turning to green when mature. Its sori<sup>[1]</sup> are long and narrow, arranged parallel to the midrib on the underside of the pinnae<sup>[3]</sup>.

Centipede Ferns can be found growing terrestrially in a wide range of habitats including open areas and disturbed grounds. They are rarely found in areas with deep shade.





Young frond

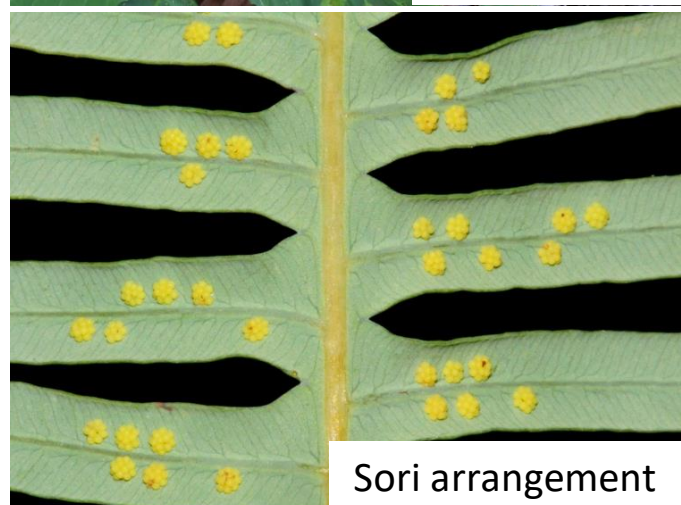


## *Dicranopteris linearis*

Resam



Young frond



Sori arrangement

**Species Name:** *Dicranopteris linearis*

**Family:** Gleicheniaceae

**Common Name:** Resam

**Distribution:** Tropical Africa and Tropical Asia

**Conservation Status:** Native to Singapore  
(Common)

*Dicranopteris linearis* or Resam is a terrestrial fern which spreads horizontally and can easily form a dense mat. The main stem splits into 2 and subsequently, branches out several times. Its sori<sup>[1]</sup> are found on the underside of the furthestmost pinnae<sup>[3]</sup>.

Resam can be found growing along forest margins, open ground, colonising disturbed ground and poor soils.





Sori arrangement



Nest fronds



Rhizome



## *Drynaria quercifolia*

### Oak Leaf Fern



**Species Name:** *Drynaria quercifolia*

**Family:** Polypodiaceae

**Common Name:** Oak Leaf Fern

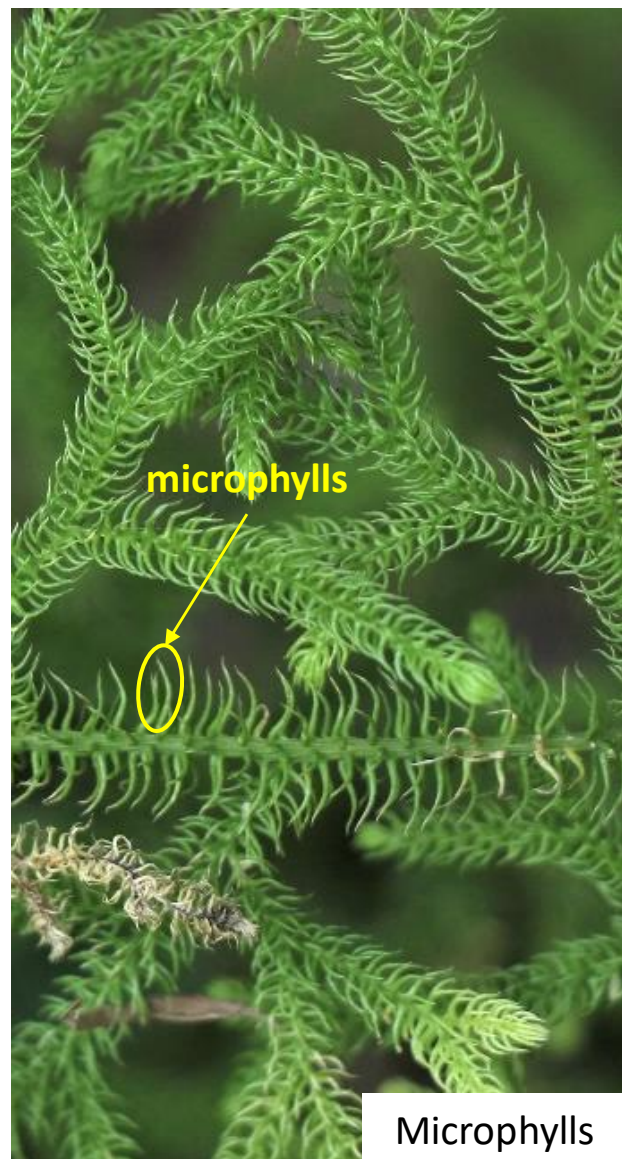
**Distribution:** Hainan to Tropical Asia and Tropical Australia

**Conservation Status:** Native to Singapore (Common)

*Drynaria quercifolia* or Oak Leaf Fern produces two types of fronds, nest and foliage. The nest fronds are sessile<sup>[5]</sup> and oak like in appearance. They wrap tightly together to form a nest-like structure, giving it its name. This structure helps to capture debris which protects the 'woolly' rhizome from strong light and wind. The green foliage fronds have long stalks and are deeply lobed almost to the midrib. Sori<sup>[1]</sup> are round, found on the underside of the foliage fronds.

Oak Leaf Ferns grow among the crevices on rocks and boulders.





Microphylls

## *Palhinhaea cernua*

### Scrambling Clubmoss



**Species Name:** *Palhinhaea cernua*

**Family:** Lycopodiaceae

**Common Name:** Scrambling Clubmoss

**Distribution:** Tropical & Subtropical regions

**Conservation Status:** Native to Singapore (Common)

*Palhinhaea cernua* or Scrambling Clubmoss is a terrestrial clubmoss which creeps over ground. Aerial stems arise vertically from the main stem, much-branched which makes the plant look like a miniature pine tree. Its tiny microphylls are yellowish green to bright green, soft, and needle-like (2 – 5 mm long). Pendulous cone-like structures containing sporangia<sup>[6]</sup> may be observed at the tips of the branches.

Scrambling Clubmoss are found growing along forest margins, within the grasslands, on the slopes of hills, mountains and cliffsides.





Sori bearing lobe



## *Platycerium coronarium*

Staghorn Fern



Shield fronds

**Species Name:** *Platycerium coronarium*

**Family:** Polypodiaceae

**Common Name:** Staghorn Fern, Crown Staghorn

**Distribution:** Cambodia, Laos, Myanmar, Thailand, Vietnam, West and Central Malesia

**Conservation Status:** Native to Singapore (Common)

*Platycerium coronarium* or Staghorn Fern is a large epiphytic fern with two distinct types of fronds; erect shield fronds (infertile) and pendulous spore-bearing (fertile) fronds. The shield fronds are fan-shaped with fingers-like lobes at the tips. Fertile fronds can grow up to 2 m long, bifurcates<sup>[7]</sup> continuously to form net-like structures hanging below the shield fronds. Sori<sup>[1]</sup> are found on the surface of kidney-shaped lobes which are part of the fertile fronds.

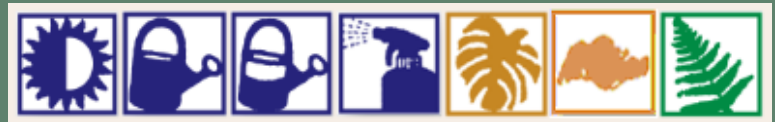
Staghorn Ferns can be found growing as epiphytes on large mature trees in the forests or along roadsides.





## *Pteris tripartita*

Giant Brake Fern



Sori arrangement

**Species Name:** *Pteris tripartita*

**Family:** Pteridaceae

**Common Name:** Giant Brake Fern

**Distribution:** Tropical Africa to Pacific; naturalized in several countries such as USA (Florida) and Puerto Rico

**Conservation Status:** Native to Singapore (Endangered)

*Pteris tripartita* or Giant Brake Fern is a big terrestrial fern that grow up to 2 m tall. It has wide-spreading fronds and the main stem branches into 3 pinnae<sup>[3]</sup>. Each is further divided into deep-lobed pinnules<sup>[2]</sup>. The sori<sup>[1]</sup> are borne along the margins on the underside of the pinnules.

The Giant Brake Fern can be found growing in constantly wet grounds such as swamps, trail margins and on disturbed grounds.



Young frond





Sori arrangement



## *Pyrrosia piloselloides*

Dragon's Scale Fern



Fronds

**Species Name:** *Pyrrosia piloselloides*

**Family:** Polypodiaceae

**Common Name:** Dragon's Scale Fern

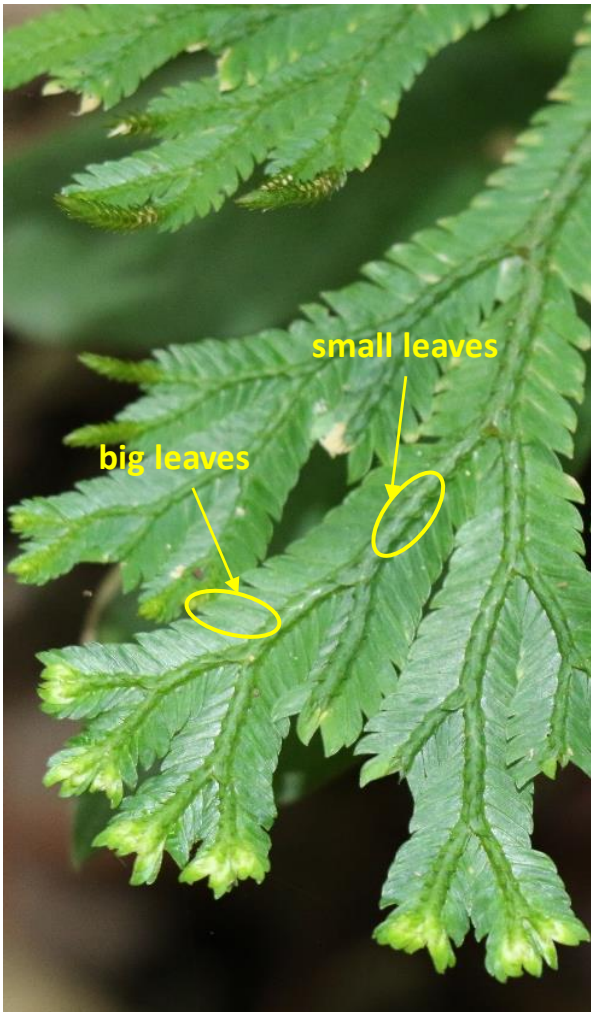
**Distribution:** China to Japan, Malesia

**Conservation Status:** Native to Singapore (Common)

*Pyrrosia piloselloides* or Dragon's Scale Fern is a small, creeping, epiphytic fern. Its fleshy fronds are oval, measuring about 1 cm across. The fertile fronds are linear, about 3 - 12 cm long. The sori<sup>[1]</sup> are borne along the edge of the underside of the fertile fronds.

The Dragon's Scale Fern can be found growing on the surface of tree trunks as epiphytes.





Leaves

## *Selaginella intermedia*

Spikemoss



**Species Name:** *Selaginella intermedia*

**Family:** Selaginellaceae

**Common Name:** Spikemoss

**Distribution:** India, Malesia, Thailand, Vietnam

**Conservation Status:** Native to Singapore (Vulnerable)

*Selaginella intermedia* is a small terrestrial lycophyte<sup>[8]</sup>. It has stems that grow almost in an upright position and is much-branched towards the tips. Each branch has 2 rows of big leaves and 2 rows of small leaves. Leaves are tiny and scale-like. Sporangia<sup>[6]</sup> are cone-like in appearance, found at the tip of the branches.

Spikemoss can be found growing on moist grounds rich in organic matter, along trails and water streams of the forest.





## *Taenitis blechnoides*

Ribbon Fern



**Species Name:** *Taenitis blechnoides*

**Family:** Pteridaceae

**Common Name:** Ribbon Fern

**Distribution:** Tropical and Subtropical Asia to Northern Australia and Pacific.

**Conservation Status:** Native to Singapore (Common)

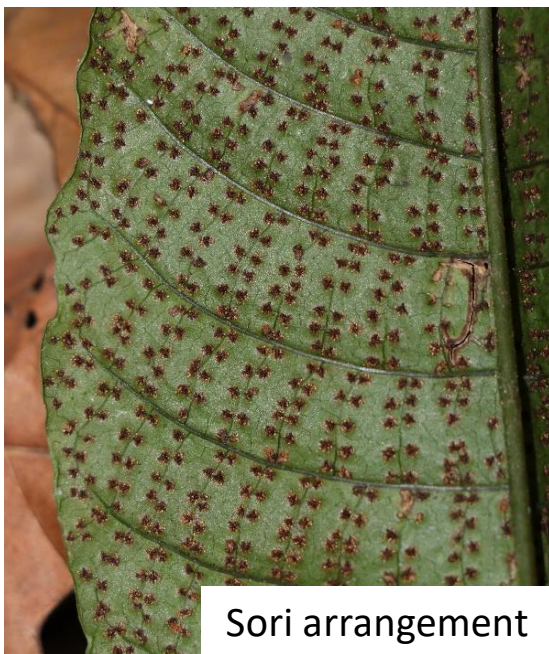
*Taenitis blechnoides* or Ribbon Fern have pinnate fronds that can grow to 40 cm long and 30 cm wide. The pinnae<sup>[3]</sup> are linear, growing up to 25 cm long and 4 cm wide. The leaf margins can be smooth, wavy or rolled towards the underside of fronds. Sori are linear, arranged in two lines parallel to its midrib on the underside of the pinnae.

Ribbon Ferns can be found along lightly shaded path, streambeds and between rocks. It is rarely seen in deeply shaded locations.



Sori arrangement





Sori arrangement



Fronds

# *Tectaria singaporiana*

## Monitor Lizard Fern



**Species Name:** *Tectaria singaporiana*

**Family:** Tectariaceae

**Common Name:** Monitor Lizard Fern, Paku Biawak

**Distribution:** Malasia

**Conservation Status:** Native to Singapore (Common)

*Tectaria singaporiana* or Monitor Lizard Fern is a terrestrial fern that can grow to 85cm tall. Fronds can reach 40 cm long and 10 cm wide. The bumpy texture of fronds are attributed to the presence of sori<sup>[1]</sup>, found on the underside. Sori are round, covering the entire underside of the fronds. The leaf stalk is thin and black coloured.

Monitor Lizard Fern can be found in the undergrowth, especially in damp and lightly shaded areas or along slopes in the forest.



## Glossary

- |     |            |   |
|-----|------------|---|
| [1] | Sorus      | Plural, Sori. A cluster of spore-producing structures (sporangia) usually located on the underside of the fern leaves.  |
| [2] | Pinnule    | Plural, Pinnules. A segment of a fern leaflet (Pinnae).   |
| [3] | Pinna      | Plural, Pinnae. A single fern leaflet.  |
| [4] | Rosette    | Arrangement of foliage in a radiating or circular pattern   |
| [5] | Sessile    | Attached to the base, lacks a stalk or peduncle.  |
| [6] | Sporangium | Plural, Sporangia. The structure that produces spores.  |
| [7] | Bifurcates | Divides into two parts or branches  |
| [8] | Lycophyte  | The oldest seedless vascular plants catergorised into 3 main families: Lycopodiaceae, Selaginellaceae and Isoetaceace. They can be distinguished from their vascular tissue and small leaves – microphylls with a single vascular strand and kidney-shaped sporangia. |



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