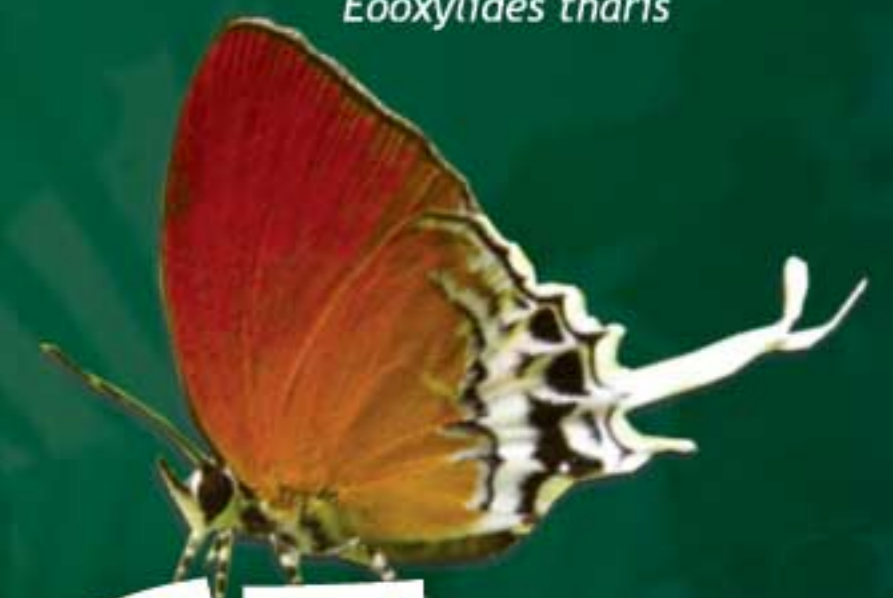


SINGAPORE'S *very own*

NATURAL

Branded Imperial Butterfly
Eooxylides tharis



HERITAGE

There are terrestrial habitats in Singapore with a rich variety of plants and animals



Tropical Rainforests

Tropical Rainforests are one of the oldest, richest and most complex ecosystems on Earth! Almost all major groups of living things can be found here. Rainforests in Singapore are predominantly secondary forests of different forms. Primary rainforests are only found only in Central Catchment and Bukit Timah Nature Reserve. Soil is generally poor, but high rates of decomposition and nutrient recycling enable the forest to support such rich plant life. Forests occur in layers, with the tallest trees forming the emergent and canopy layers; while vines, orchids and ferns occupy the available spaces between the canopy and the forest floor. The understory layer supports rattans, shrubs and saplings of the canopy trees. Interesting local forest animals include the Colugo, Scaly Pangolin, Lesser Mousedeer, Flying Lizard, Wagler's Pit Viper, Spiny Hill Terrapin and Giant Millipede.

To protect our rainforests, research and selected reforestation programmes are being carried out in the nature reserves and some parks.



Adinandra Belukar

'Belukar' (meaning 'degraded' in Malay) is a unique type of secondary rainforest. It develops on areas that used to be farmed intensively, where the soil is acidic and extremely poor. As such, Belukar forests support a much lower diversity of plant and animal life, compared to other rainforests. They can be found at Kent Ridge and Pulau Ubin, with smaller patches scattered around the island. They comprise almost a single stand of medium-height *Adinandra* (Tiup Tiup), interspersed by Tembusu and Silver-back trees. Plants often associated with Belukars include the Simpoh Air, Singapore Rhododendron, White-leafed Fig, Funnel/Urn-shaped/ Raffles Pitcher Plant and Resam. Interesting animals here are the Oriental Whip Snake, Short-nosed Fruit Bat, Carpenter Bee, and birds like the Yellow-vented Bulbul, Peaceful Dove and Pink-necked Green Pigeon.

Adinandra Belukar can only be found in Singapore and a few parts of South-east Asia.



Wagler's Pit Viper
Tropidolaemus wagleri



Grasslands

Grasslands in Singapore comprise Lalang fields and stands of tall grasses like Guinea and Buffalo Grasses. They represent a stage in the succession of plants on cleared lands. Growing among the grasses are wild-flower species like Mimosa, Mile-a-minute, Morning Glory, sedges (Kyllingia and Nut Grass) and Vernonia. The soil is so poor that it cannot support many tree species. Those present include the hardy Acacia, Wild Cinnamon and Indian Cherry Tree. Most of these plants were brought to the open land by wind or birds, so it is no wonder that a variety of birds are found here. Birds like the Scaly-breasted Munia, Baya Weaver and Olive-backed Sunbird depend on the grasses for food and nesting materials. Other birds like the Lesser Coucal, White-breasted Waterhen and Cattle Egret are commonly found in the area. Other grassland animals include insects, spiders, frogs, lizards and snakes.

Grasslands are prone to fires, especially during the dry season.

Veiled Stinkhorn
Dictyophora duplicata



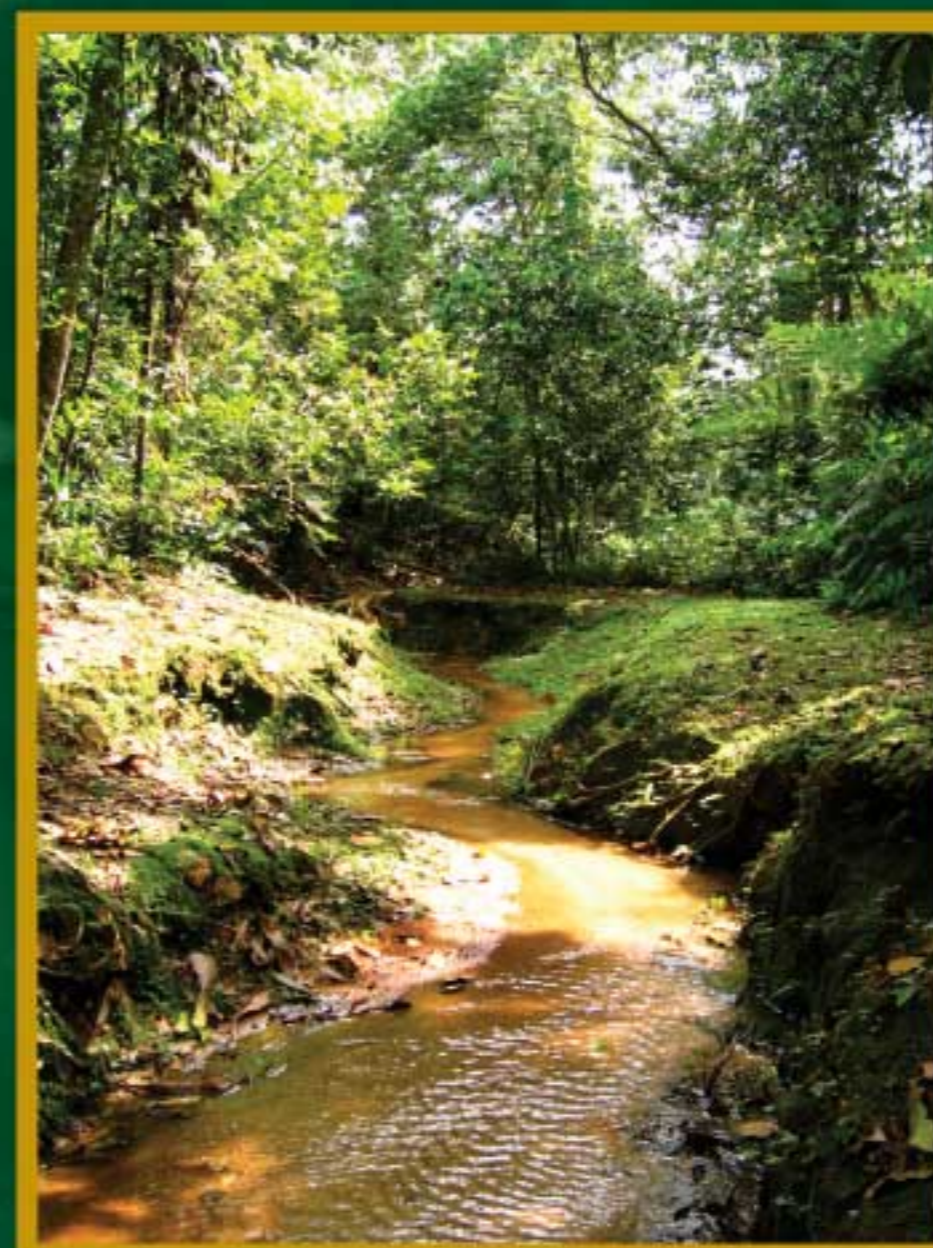
Harlequin Rasbora
Trigonostigma heteromorpha



Soil

Soil comprises several layers: leaf litter (forests) or humus (grass) layer, topsoil, subsoil and bedrock. Life is found mostly within the leaf litter and topsoil layers, where organic and nutrient content are high and air is available. The leaf litter layer (1-30cm in thickness) makes good hiding places for termites, ants, spiders, cockroaches, centipedes, millipedes, snails, scorpions, toads, skinks and snakes. Within the top soil layer (2-50cm in thickness) are the roots of plants and a large community of soil organisms like bacteria and animals like earthworms, woodlice, springtails, beetle larvae, nematodes and mites. Fungi and bacteria play vital roles in decomposition and the recycling of nutrients in the surrounding ecosystems. The subsoil layer in our region is made up of iron-oxide rich clay. This is exposed through the removal of topsoil by erosion or human activities. Below the subsoil is the bedrock, the original geological material found in the land.

The ground can be polluted by chemicals (fertilizers and pesticides) through overuse or dumping.



Streams & Rivers

The upper reaches of our rivers are freshwater streams that flow through forested areas. Stream water is cool, acidic and fast flowing. They are home to many rare and endangered species such as the Forest Fighting Fish, Forest Walking Catfish and Singapore Freshwater Crab. The middle reaches of our rivers flow through open areas and support hardier fish species like mollies, rasboras, halfbeaks and snakeheads. Here *Spirogyra* algae and Hydrilla are common. The lower reaches of many rivers have been converted into canals. The water here is mixed with seawater when tides are high. Salt-tolerant species like tilapias and guppies are common. Near the river mouth, marine snails, clams and crabs are common.

The Singapore and Kallang Rivers were very important for the transportation of goods in the past and had faced pollution problems. Since then, these rivers have been cleaned and river life has improved tremendously.

Sun Skink
Mabuya multifasciata



Giant Millipede
Thyropygus sp.



Green Crested Lizard
Bronchocela cristatella

