

Built for S'poreans, shared with wildlife: The making of a City

From Garden City to City in Nature, Singapore's greening ambitions have changed over the years. To mark SG60, The Straits Times traces the nation's leafy metamorphosis, and why it matters for the people and wildlife of Singapore.

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Singapore is known as one of the greenest cities in the world. Travel blogs praise it, Singaporeans enjoy it, and now, increasingly, wildlife is too. As vegetation snakes its way through the urban landscape and nature is restored in the city through "rewilding" efforts, animals once thought to be extinct in Singapore, such as the oriental pied hornbill and smooth-coated otter, have made a comeback. But Rome was not built in a day. Singapore's greening journey started some six decades ago.

PHASES OF A GREEN JOURNEY

In Singapore's early days, the main idea was to tap greenery to beautify and create a clean city. When the Garden City vision was unveiled in 1967, Singapore was still a fledgling nation and the image of a well-managed and clean city could help the country thrive, said experts. This was done with manicured roadside trees and planted gardens, said Dr Lahiru Wijedasa, an ecologist at environmental consultancy and agroforestry firm ConservationLinks. "There was no real focus on spe-

cies, more of just planting what grows to give us what we need: a clean, organised city," he added. Greening later became more intentional and more colours were introduced to the planting palette. In 2011, Singapore's City in a Garden vision was introduced. Parks were linked up via the park connector network and developers were encouraged to incorporate skyrise greenery into buildings so as to further integrate nature into urban spaces. "The regimental planting of the Garden City era was replaced by mixed plantings that mimicked forest structure, with native species playing a bigger role," said Dr Lahiru. "The idea of a manicured garden in a specific place gave way to a city being incorporated into a garden." In 2020, the green vision progressed further.

Singapore now wanted to become a City in Nature, which aims to provide a green, liveable and sustainable home for Singaporeans and wildlife to co-exist. Initiatives under this vision included expanding the nature park network, naturalising gardens and parks, restoring greenery in urban areas and connecting green spaces, said the National Parks Board (NParks). "The key distinction of being a City in Nature is in how Singapore understands nature's role in national survival and climate resilience," said Dr Lahiru. Being a City in Nature is about how Singapore takes a holistic approach towards the environment and celebrating life in all forms, beyond birdwatching or admiring pretty plants, said Dr Shawn Lum, a senior lecturer at NTU's Asian School of the Environment.

THE 'FOREST LAPIS'
One of the goals of a City in Nature

is to link up Singapore's fragmented habitats. The roll-out of nature ways, or routes planted with specific trees and shrubs to replicate the structure of a natural forest, could help with this. Natural forests have different layers, comprising vegetation that grows to varying heights to support wildlife species that have different feeding and breeding preferences. NParks aims to complete 300km of nature ways by 2030. Currently, there are 54 nature ways in Singapore, stretching 240km in total. An example of a nature way is the Lornie Nature Corridor, which comprises a nature way and a park connector, and acts as a buffer to the Central Catchment Nature Reserve. The corridor has more than 100 species of trees and shrubs so far.

For example, the pink mempat (*Cratogeomys formosus*) and kempas (*Koompassia malaccensis*), which are both native and endangered, were planted to provide food and habitat to support various insects and birds. NParks has also tried to re-introduce endangered plant species such as the native Singapore kopsia (*Kopsia singaporensis*), a tree that is considered critically endangered here. Nature ways can help wildlife move around to find food and mates, said butterfly expert Khew Sin Khoon. "They are not merely green corridors, they are critical ecological highways that enable urban biodiversity to move between major nature nodes across the island," added Mr Khew, who is also head of Singapore butterfly interest group ButterflyCircle. Butterflies such as the rustic (*Cupha erymanthis lotis*) are usually found in forests. But these can now be seen in

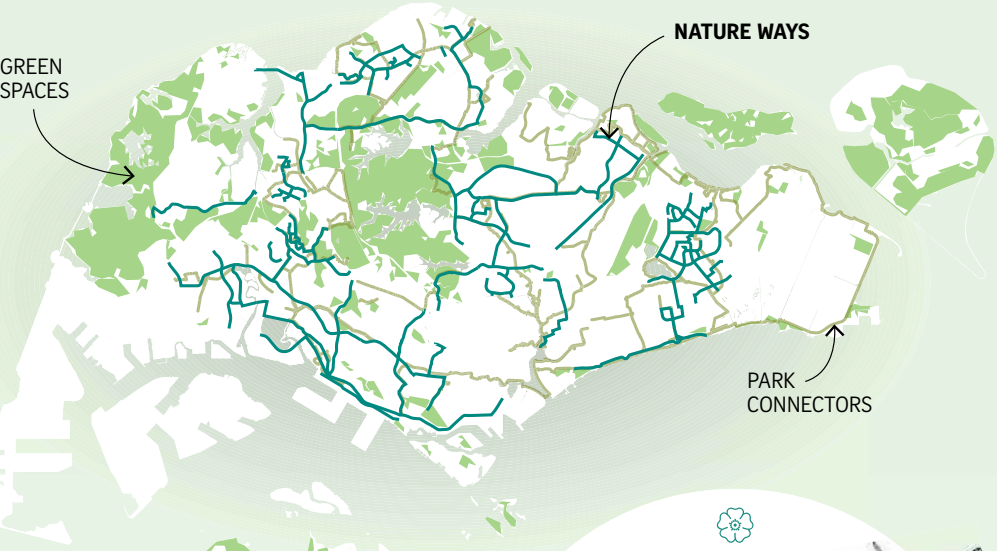


park connectors and even urban parks, Mr Khew said. This could be due to the planting of the caterpillar's host plant, rukam masam (*Flacourtia inermis*) along roads, park connectors and urban gardens, said Mr Khew. NParks has also planted native shrub species like the common senduduk (*Melastoma malabathricum*) which attracts birds like the scarlet-backed flowerpecker (*Dicaeum cruentatum*) and insects such as the striped nomia bee (*Nomia strigata*). Improved connectivity between Singapore's green spaces will improve the gene flow between populations and also increase the butterfly's resilience to environmental changes, Mr Khew added. A separate study by NTU in February found that road verges with a higher diversity of flowering plants attract more butterflies due to the year-round availability of nectar, as plants bloom at different times.

NATURE WAYS: Designed to replicate the natural structure of forests

The design of some nature ways is part of the rewilding strategy, aimed at allowing nature to grow more naturally with minimal intervention. Nature ways also serve as green corridors to help wildlife move from forest to forest.

Currently there are **54 nature ways** in Singapore.

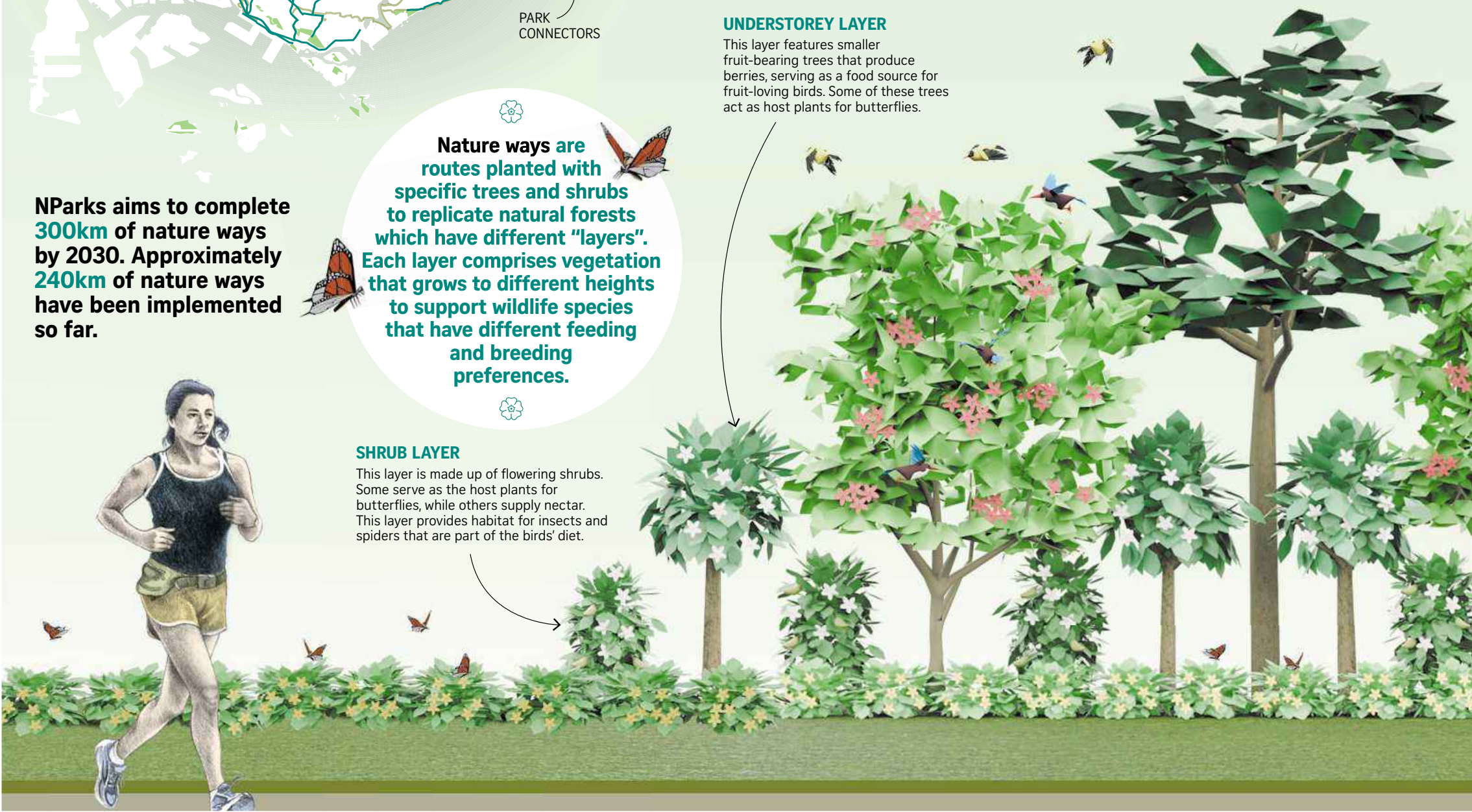


NParks aims to complete **300km** of nature ways by 2030. Approximately **240km** of nature ways have been implemented so far.

Nature ways are routes planted with specific trees and shrubs to replicate natural forests which have different "layers". Each layer comprises vegetation that grows to different heights to support wildlife species that have different feeding and breeding preferences.

SHRUB LAYER
This layer is made up of flowering shrubs. Some serve as the host plants for butterflies, while others supply nectar. This layer provides habitat for insects and spiders that are part of the birds' diet.

UNDERSTOREY LAYER
This layer features smaller fruit-bearing trees that produce berries, serving as a food source for fruit-loving birds. Some of these trees act as host plants for butterflies.



in Nature



REFLECTING NATION'S TRANSFORMATION

In a way, this whole journey mirrors the growth of a nation – from trying to survive, to trying to impress, to now trying to sustain.



DR LAHIRU WIJEDASA, an ecologist at environmental consultancy and agroforestry firm ConservationLinks, on how the country's transformation over the decades is reflected in its greening journey.

As vegetation runs through the urban landscape and nature is restored in the city via "rewilding", animals once thought to be extinct in Singapore, such as the oriental pied hornbill, have made a comeback. PHOTO: LIANG HANCI



The right plants attract wildlife

The red leea (*Leea rubra*), a shrub species, attracts the olive-backed sunbird (*Cinnyris jugularis*), above, and the black veined tiger butterfly (*Danaus melanippus hegesippus*), above left.

The common senduduk (*Melastoma malabathricum*), a native shrub species, attracts birds like the scarlet-backed flowerpecker (*Dicaeum cruentatum*), left.

The researchers include Dr Tharaka Priyadarshana and Associate Professor Eleanor Slade from the Tropical Ecology and Entomology Lab at NTU's Asian School of the Environment.

While the road verges studied are not formally part of Singapore's nature ways, the researchers said they serve a similar ecological function on a smaller scale by providing resources such as nectar and shelter.

They also serve as important connectors that help butterflies move across urban landscapes of unconnected greenery, complementing the broader connectivity provided by nature ways, said the researchers.

Mr Khew said: "Nature ways represent a science-based, scalable solution to keep Singapore's City in Nature vision alive – not just for humans, but for the butterflies, birds, and countless other species that share our city."

PLANTING TREES, GROWING ROOTS

As part of the City in Nature push, Singapore in 2020 launched the OneMillionTrees movement.

The aim is to plant a million more trees across the island by 2030.

As at June, 800,868 trees have been planted across Singapore, according to NParks' website.

More trees have been planted in places such as schools and residential and industrial estates since the launch of the movement.

On industrialised Jurong Island, for example, more than 34,000 trees have been planted since 2020. More than 80 species of trees such as the common sterculia (*Sterculia parviflora*) and the shore laurel (*Neolitsea cassia*) were chosen to line the island – one of Singapore's warmest areas.

The tree species were chosen based on their ability to tolerate drought, their colourful flowers

and wide crowns that can provide shade.

Trees act as natural air filters, providing clean air. They also provide cool and shaded environments, helping to reduce the urban heat island effect – where urban structures trap heat in the day and release it at night.

Forests also provide habitats for wildlife like the critically endangered straw-headed bulbul, a songbird, and the Sunda pangolin, and store carbon to mitigate the effects of climate change.

A NATION'S TRANSFORMATION

As Singapore celebrates its 60 years of independence, the country's transformation over the decades is reflected in its greening journey, said experts.

"In a way, this whole journey mirrors the growth of a nation – from trying to survive, to trying to impress, to now trying to sustain," Dr

Lahiru said. "It reflects how we think as a society, how we see ourselves, and what we believe we need in order to survive and thrive."

As Singapore transitions from Garden City to City in a Garden to City in Nature, Dr Lahiru said that the City in Nature could be the "most honest" version of what the country has been trying to do – to create a home for both humans and nature. "It brings in ideas of resilience, biodiversity, and responsibility. It's no longer about making things green – it's about making sure nature survives, so we do too," he noted.

Dr Lum added: "It is now up to all of us to embrace the City in Nature, and to nurture this seed and to care for it so that it can become an inspiring thing of beauty and wonder."

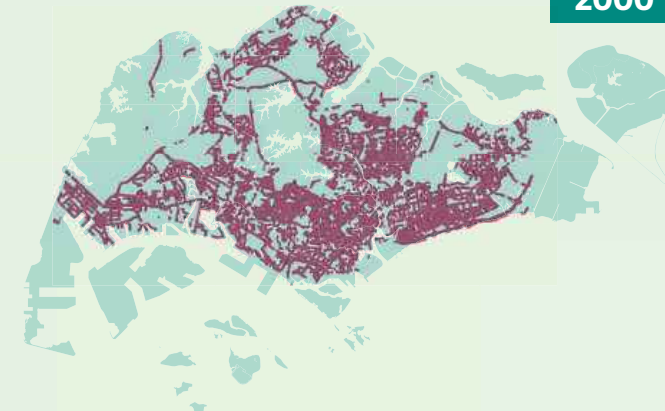
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ONEMILLIONTREES MOVEMENT: Planting 1 M trees by 2030

As part of the City in Nature push, Singapore in 2020 launched the OneMillionTrees movement. The aim is to plant a million more trees across the island by 2030.

There were at least 92,861 trees planted as of 2000.

2000

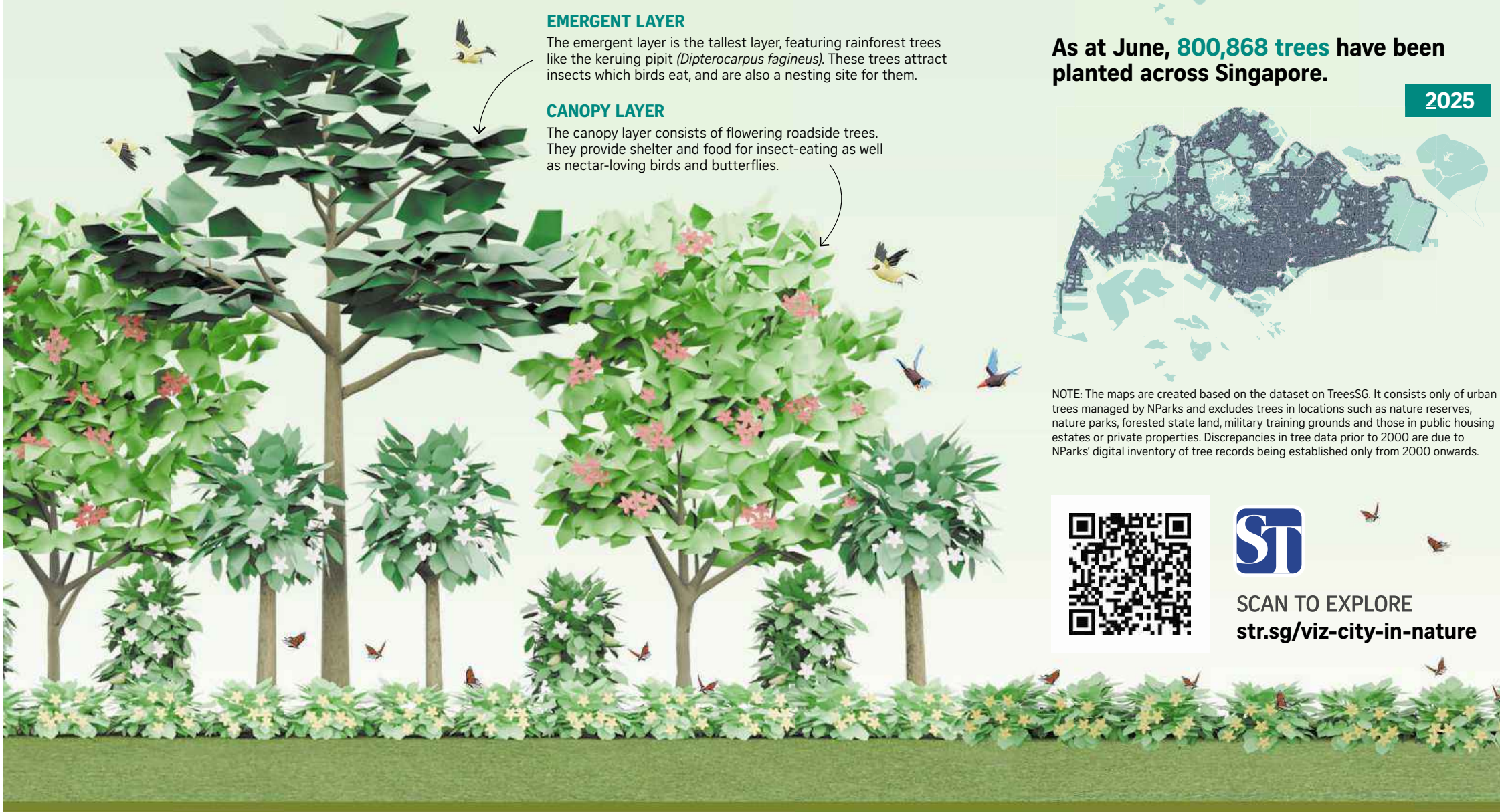


As at June, 800,868 trees have been planted across Singapore.

2025



NOTE: The maps are created based on the dataset on TreesSG. It consists only of urban trees managed by NParks and excludes trees in locations such as nature reserves, nature parks, forested state land, military training grounds and those in public housing estates or private properties. Discrepancies in tree data prior to 2000 are due to NParks' digital inventory of tree records being established only from 2000 onwards.



EMERGENT LAYER

The emergent layer is the tallest layer, featuring rainforest trees like the keruing pipit (*Dipterocarpus fagineus*). These trees attract insects which birds eat, and are also a nesting site for them.

CANOPY LAYER

The canopy layer consists of flowering roadside trees. They provide shelter and food for insect-eating as well as nectar-loving birds and butterflies.



SCAN TO EXPLORE
str.sg/viz-city-in-nature