

FACTSHEET A: UPDATES ON CITY IN NATURE EFFORTS

In 2020, the Ministry of National Development (MND) announced that the National Parks Board (NParks) would work with the community to transform Singapore into a City in Nature, with the objective of ensuring that Singaporeans continue to enjoy a high-quality living environment in the face of continued urbanisation and climate change. MND and NParks established a new planning and development paradigm that will conserve and extend Singapore's natural capital island-wide. To achieve this, NParks is implementing four key strategies: (i) expanding the nature park network; (ii) intensifying nature in gardens and parks; (iii) restoring nature into the urban landscape; and (iv) strengthening connectivity between green spaces. NParks is partnering the community to realise the City in Nature vision by inspiring and bringing Singaporeans together to be stewards for nature, such as through the OneMillionTrees movement and the Nature Kakis Network.

The City in Nature vision is also one of the five pillars under the Singapore Green Plan 2030, a whole-of-nation sustainable development agenda that was launched in February 2021. Through our City in Nature efforts, we aim to create a green, liveable, and sustainable home for all Singaporeans.

Progress of City in Nature efforts

The National Parks Board (NParks) has made good progress in our efforts to transform Singapore into a City in Nature. *Please see <u>Annex A</u> for more information on the overall City in Nature vision that was announced in 2020, and <u>Annex B</u> for a summary of key progress updates to the City in Nature targets.*

In 2023, as part of NParks' efforts to intensify nature in gardens and parks, we completed the 60 ha Lakeside Garden in Jurong Lake Gardens with the opening of a new northern section. In addition, we announced plans to enhance 13 parks in Singapore's southern region and link them up via curated trails for more nature-



based recreation opportunities along the Southern Ridges and west coast. The 13 parks include three planned Destination Parks: HortPark, Labrador Nature Park and West Coast Park. NParks is also incorporating more therapeutic landscapes in our gardens and parks, with the opening of five Therapeutic Gardens in 2023 to support the physical, psychological, and social needs of visitors.

To conserve and extend our natural capital, we continued to expand our Nature Park Network. While we continued to restore and enhance the habitats of Lim Chu Kang Nature Park, which extends Sungei Buloh Wetland Reserve, NParks has progressively rolled out curated programmes and activities at the nature park since November 2023. NParks will continue to establish additional green spaces, with several new nature parks such as Mandai Mangrove and Mudflat Nature Park and Khatib Bongsu Nature Park currently being planned and developed.

Community stewardship is a key pillar in transforming Singapore into a City in Nature. To mark 60 years of greening Singapore since our first nation-wide tree planting campaign in 1963, NParks ramped up engagement with corporates and at the grassroots level and provided more opportunities for the community to participate in our greening and nature conservation efforts in 2023. More than 640,000 trees have been planted as of January 2024, with the help of more than 100,000 members of the community, since the launch of the OneMillionTrees movement in 2020.

In 2023, NParks also established the Nature Kakis Network to encourage greater participation in City in Nature-related initiatives by the wider community, developed by passionate volunteers at the local grassroots level known as Nature Kakis. There are now 16 Nature Kakis chapters island-wide with 140 appointed Nature Kakis, who have reached out to over 5,100 residents.

NParks continues to involve schools, volunteers, and partners in its Community in Nature programmes. In March 2023, youth stewards under the Youth Stewards for Nature programme organised the second World Wildlife Day Regional Youth



Symposium in Singapore, bringing together youth attendees from around the region to discuss how youths can play a part in nature and biodiversity conservation.

To engage a global community of youths on wildlife trade and conservation on a broader scale, Singapore youths will be involved in kickstarting the CITES Global Youth Network (CGYN), which is supported by NParks. The CGYN seeks to build an international platform for youths to cross-share knowledge and be better equipped to understand the intricacies of sustainable wildlife trade. This will enable them to inform and influence conservation efforts in future. The network's inaugural meeting will be held in Singapore this April, where young environmental leaders from all over the world will come together to chart the vision for the CGYN, and to spearhead their own initiatives to address illegal wildlife trade worldwide. Founding members of the CGYN will organise the inaugural Global Youth Summit in 2025 in Singapore, to continue engaging with youths around the world and develop their capacity in understanding CITES-related matters, with the support of NParks.



FACTSHEET B: NEW BIOSURVEILLANCE RESEARCH PROGRAMME

The National Parks Board (NParks) has launched a new S\$15 million Biosurveillance Research Programme under the Research, Innovation and Enterprise 2025 Plan¹ (RIE2025) to enable early detection and intervention against potential outbreaks of zoonotic diseases. The programme also aims to empower industry and community stakeholders, as well as the public, with a greater understanding of zoonoses prevention. Developed in partnership with One Health agencies, ² the new programme will provide the research community with funded research opportunities to advance the scientific understanding of zoonotic diseases and their key drivers in Singapore, and to develop and examine evidence-based upstream mitigation strategies. This builds on existing national biosurveillance efforts and interagency collaboration between One Health agencies, and will help to address public health disease challenges brought about by climate change and the transboundary movement of people, animals and vectors, as part of NParks' efforts to enhance ecological resilience and protect public health and safety. Upcoming research opportunities under the new programme will be released in the year ahead.

Strengthening our biosurveillance capabilities to better safeguard animal and public health

Research efforts under the programme will seek to foster transdisciplinary research collaboration and data sharing through the Whole-of-Government Biosurveillance Framework, to harness and consolidate expertise across public agencies, research institutes, and industry partners, across key disciplines such as genomics, disease modelling, ecology, and vector biology.

¹ The Research, Innovation and Enterprise 2025 Plan is Singapore's national strategy to harness science and technology to build a more resilient, sustainable, and digital Singapore, and create new opportunities for Singaporeans.

² The One Health framework comprises five agencies in Singapore – the Ministry of Health (MOH), the National Environment Agency (NEA), the National Parks Board (NParks), the Singapore Food Agency (SFA) and PUB, Singapore's National Water Agency.



Through these efforts, the programme ultimately aims to build scientific knowledge to establish a more effective system to monitor and detect zoonotic diseases within the urban environment, and to provide insights on how urban development and animal movement may affect disease transmission and ecology. The programme also seeks to inform upstream strategies for effective zoonotic disease mitigation, such as through land-use planning, habitat restoration, and targeted animal management measures, and empower relevant industry and community stakeholders with the required scientific knowledge and safe practices for zoonotic disease prevention.

Research efforts under the Biosurveillance Research Programme will be centred around two key themes:

- i. <u>Genomics and Genetics</u> This research theme seeks to study novel molecular approaches that can be used to gain insights on zoonotic pathogens and their animal hosts and vectors, as well as enable highresolution detection and characterisation of these pathogens. Key examples include enhanced invertebrate (iDNA) and environmental sampling (eDNA), and the use of field-deployable sensors, diagnostic platforms, and automated analytics. Findings from this theme can inform efforts in disease source tracking in animal hosts and their environments through, for instance, documenting the diversity of animal host reservoirs, mapping animal host population connectivity, and studying the evolution and transmission dynamics of novel pathogens.
- ii. <u>Epidemiological and Ecological Connectivity</u> This research theme seeks to better understand the interactions between zoonotic pathogens and their animal hosts and vectors, as well as with people and the environment, by using a range of modelling, observational, and risk analysis approaches. This includes examining the socioeconomic and behavioural drivers of animal movement, such as the illegal trade of pets and wildlife, as well as the effects of land use and habitat connectivity on animal host and vector distribution.



Efforts under this theme will deepen scientific insights and create new knowledge products to guide the implementation of evidence-based interventions and countermeasures for mitigating zoonotic disease risk in Singapore's urban context.

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ANNEX A: SINGAPORE'S CITY IN NATURE VISION

Singapore's Greening Journey

At the start of Singapore's greening journey, the aim was to green the island as quickly as possible, to provide shade and access to green spaces for all. Our greening strategy then evolved to provide colour and vibrancy through the planting of flowering trees and shrubs. Parks were linked via the Park Connector Network and developments were encouraged to incorporate skyrise greenery. In recent years, NParks has also adopted biophilic designs in restoring habitats and has been engaging the community on our greening efforts.

Safeguarding Core Green Spaces

Singapore takes a long-term view towards land-use planning, with stewardship and sustainability as core principles. NParks adopts a science-based approach to identify core biodiversity areas and surrounding buffers to be retained for future generations. NParks' Nature Conservation Masterplan sets out strategies to safeguard these green spaces. In 2022, as part of the Long-Term Plan Review, NParks completed the Ecological Profiling Exercise (EPE) to study the ecological profile of green spaces across Singapore, and to better understand their role in ecological connectivity. The EPE was carried out with a Scientific Advisory Panel, which consisted of academics and experts from the nature community. It supports NParks' science-based approach towards nature conservation, focusing on the ecological connectivity of sites, as well as the approach to conserve ecologically sensitive areas amidst development.

Climate Change

Climate change is a growing existential threat. It brings extreme weather conditions, higher urban temperatures, and increased risks of localised flooding events. This, coupled with the fact that Singapore needs to develop sustainably to satisfy both the

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needs of today and the possibilities and challenges of tomorrow, means we must develop our city in a way that continues to provide a high-quality living environment for all Singaporeans, while ensuring that Singapore remains a distinctive global city that is highly liveable and sustainable.

Transforming into a City in Nature

To transform Singapore into a City in Nature, we are conserving and extending Singapore's natural capital island-wide, through the following four key strategies:

- 1. Expanding the Nature Park Network
- 2. Intensifying nature in gardens and parks
- 3. Restoring nature into the urban landscape
- 4. Strengthening connectivity between Singapore's green spaces

1. Expanding the Nature Park Network

Singapore's four nature reserves (Bukit Timah, Central Catchment, Labrador, and Sungei Buloh Wetland Reserve) safeguard primary and secondary rainforests and are core habitats for native biodiversity. As core components of Singapore's natural capital, they are also primary providers of ecosystem services such as clean air and water. To safeguard our nature reserves as well as extend our natural capital, NParks has converted forested areas surrounding the nature reserves into nature parks. These nature parks serve as complementary habitats and buffers to protect the nature reserves against the impact of urbanisation and human activities. They also provide expanded habitats for Singapore's native flora and fauna to thrive beyond the nature reserves. These are part of efforts to identify core areas of ecological significance and their surrounding buffers, and retain them for future generations. Nature parks also provide more opportunities for Singaporeans to enjoy nature-based activities such as hiking, mountain biking, and bird watching, with minimal disturbance to the nature reserves.

We have continued to restore and enhance the habitats of Lim Chu Kang Nature Park, which serves as the western extension to Sungei Buloh Wetland Reserve and 8



consists of intertidal mangrove and mudflat. Since November 2023, NParks has progressively rolled out curated programmes and activities at Lim Chu Kang Nature Park.

Target: NParks will continue to grow the Nature Park Network and aims to add another 200 hectares of nature parks by 2030 (from 2020 baseline).

2. Intensifying nature in gardens and parks

NParks is intensifying nature in our gardens and parks. These efforts will dovetail with NParks' plans to establish more green spaces and enhance existing ones, thus expanding our natural capital, and allowing Singaporeans to benefit from greater access to nature and its associated benefits for health and well-being.

Target: NParks will develop more than 130 hectares of new parks and enhance about 170 hectares of existing gardens and parks with lush vegetation and natural landscapes by 2026.

Therapeutic landscapes

NParks is incorporating more therapeutic landscapes in gardens and parks. NParks has developed Therapeutic Gardens specially designed and programmed for seniors. It is also developing more garden typologies to cater to diverse health conditions such as attention deficit hyperactivity disorder (ADHD), dementia, stroke, heart, and mood disorders. In 2023, NParks opened five new Therapeutic Gardens at KMPG Wellness Garden, Yishun Pond Park, Sembawang Park, Sun Plaza Park, and Woodlands Healing Garden, bringing the total to 14.

Target: There will be 30 Therapeutic Gardens in parks across Singapore to meet different needs by 2030.

NParks is also facilitating therapeutic horticulture programmes in community spaces to promote better physical and mental health of seniors. Singapore's network of



nature playgardens will also be expanded, enabling children to play outdoors in specially curated nature play areas, and enjoy the benefits of connecting with nature.

Nature-based Solutions

NParks is working with PUB, Singapore's National Water Agency, to naturalise waterways and waterbodies in gardens and parks. Where feasible, concrete canals will be transformed into natural rivers, and reservoirs will serve as natural lakes that function as floodplains to protect nearby homes and properties from flooding while supporting rich biodiversity. This has been implemented successfully at Bishan-Ang Mo Kio Park and Lakeside Garden at Jurong Lake Gardens.

To enhance Singapore's coastal protection measures, NParks is restoring mangroves in parks along Singapore's coasts, such as Kranji Coastal Nature Park, and has embarked on a mangrove restoration project at Sungei Durian in Pulau Ubin, where we aim to naturally restore around 8,000 mangrove plants over time. These mangroves will function in tandem with hard engineering solutions to mitigate the effects of erosion brought about by storm surges and rising sea levels. NParks will continue to incorporate nature-based solutions in its coastal and riverine parks, to help protect Singapore against sea-level rise and inland flooding.

Species recovery and habitat restoration

NParks will also conserve more native plant and animal species. By restoring existing ecological habitats for wildlife, we will strengthen the conservation of our endangered and rare species, and provide Singaporeans with greater access to and a more immersive experience in nature. Singapore is home to a wide range of biodiversity despite being highly urbanised. Ongoing habitat restoration and species recovery efforts have enabled Singaporeans to encounter and enjoy once-rare species, such as the Singapore Kopsia and Tiger Orchid, in our gardens, parks, and streetscapes. Birds and butterflies like the Oriental Pied Hornbill and Common Birdwing can now be seen around the city. Today, species recovery plans are being implemented for over 120 plant and animal species in more than 90 parks and



gardens, and over 40 ha of forest, coastal and marine habitats have been restored and enhanced.

Target: By 2030, NParks will implement species recovery plans for 100 plant and 60 animal species and restore ecological habitats in at least 50% of NParks' gardens, parks, and streetscapes. We will also restore and enhance 80 ha of forest, marine, and coastal habitats.

3. <u>Restoring nature into the urban landscape</u>

Nature will be restored into the built environment, and greenery will be brought closer to Singaporeans' everyday lives. This will cool the urban environment and bring the therapeutic effects of greenery directly to homes and workplaces.

To do so, NParks will increase the implementation of skyrise greenery in Singapore's buildings and infrastructure. Skyrise greenery, such as vertical green walls, green roofs, and rooftop gardens, enables developers and building owners to implement more greenery within Singapore's limited space. This will cool buildings and make them more comfortable to live, work, and play in, while further beautifying our city and advancing Singapore's status as a world leader in vertical greening. To date, approximately 193 ha of skyrise greenery has been implemented.

Target: NParks aims to have 200 hectares of skyrise greenery by 2030.

NParks will also focus on greening Singapore's industrial estates, which are currently among the hotter areas in Singapore as there is less greenery there. This intensified greenery will cool the industrial estates, help to improve air quality, and beautify these areas. Since 2020, over 115,000 trees have been planted in industrial estates, with 34,000 trees planted on Jurong Island alone.

Target: NParks is working with various stakeholders to plant at least 170,000 more trees in industrial estates by 2030 (from 2020 baseline).



4. <u>Strengthening connectivity between Singapore's green spaces</u>

To sustain a healthy natural ecosystem, NParks will continue building its network of ecological corridors, to connect the habitats in nature reserves and nature parks to those in gardens and parks. These corridors, or Nature Ways, are planted with native trees and plants to mimic the multi-tiered structure of forests. These efforts will help to keep Singapore's streets cool and comfortable for pedestrians. Some Nature Ways are being further integrated with pedestrian and cycling paths to form park connectors with more natural landscapes that connect green spaces.

Target: In the medium term, NParks aims to have 300 km of Nature Ways by 2030. In the long term, NParks aspires to make every road a Nature Way.

Nature Corridors

NParks is also establishing Nature Corridors, which are identified pathways that provide important ecological connections between areas rich in biodiversity, such as the Nature Reserves. To date, NParks has announced four Nature Corridors:

- 1. Lornie Nature Corridor, which links the Central Catchment Nature Reserve to the Singapore Botanic Gardens.
- Bukit Batok Nature Corridor, which will provide ecological connectivity between Bukit Timah Nature Reserve and the forested areas within Tengah Town.
- 3. Clementi Nature Corridor, which will strengthen the ecological connectivity between Bukit Timah Nature Reserve and the Southern Ridges.
- Khatib Nature Corridor, which will enhance ecological connectivity between Central Catchment Nature Reserve and the upcoming Khatib Bongsu Nature Park.

Park Connector Network



In tandem, NParks will continue to expand the Park Connector Network to ensure that more communities can access nature easily.

Target: Singapore will have 500 km of park connectors by 2030. With this, all households will be within a 10-minute walk from a park.

To complement the Park Connector Network, NParks is also establishing several island-wide recreational routes, which comprise multiple park connectors and trails. These island-wide recreational routes will provide opportunities for Singaporeans to walk or cycle in natural spaces for longer distances. When fully completed, they will enable Singaporeans to explore our parks and nature areas along 360 km of trails island-wide. These island-wide routes (Fig. 1) will also help to enhance ecological connectivity between our natural habitats, strengthening Singapore's ecological resilience.



Figure 1: Map of recreational connectivity showing island-wide routes

Community Stewardship and Engagement

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Transforming into a City in Nature will require a Whole-of-Government effort. This is being infused into planning and development systems. However, the Government's efforts alone will not be sufficient. The success of Singapore as a City in Nature will be underpinned by the active support and participation of Singaporeans. Communities, schools, and individuals can all become stewards of greenery and biodiversity.

The City in Nature vision provides a platform to forge closer bonds between Singaporeans and strengthen Singaporeans' sense of ownership of the environment. In 2023, NParks established the Nature Kakis Network to encourage greater participation in City in Nature-related initiatives by the wider community, developed by passionate volunteers at the local grassroots level known as Nature Kakis. There are now 16 Nature Kakis chapters island-wide with 140 appointed Nature Kakis, who have reached out to over 5,100 residents.

NParks also reaches out to communities, schools, and individuals to encourage them to become stewards of greenery and biodiversity by increasing opportunities for co-creation and partnership. With the support of volunteers and corporate partners, NParks hopes to galvanise constructive community action towards caring for Singapore's living environment.

Target: NParks is looking to grow its volunteer base to 70,000 by 2030.

OneMillionTrees movement

NParks is also **partnering the community to plant one million additional trees island-wide between 2020 and 2030,** including along our streetscapes, at industrial estates, gardens, parks and park connectors, nature reserves, and nature parks. As of January 2024, more than 640,000 trees have been planted, and over 100,000 members of the community have been involved in these efforts, including the Friends of the Parks communities, Community in Nature schools, Community in Bloom gardeners, NParks volunteers, nature groups, corporate partners, and other



organisations. Some participants have taken the further step of becoming volunteer facilitators for planting sessions. Corporations and other organisations have also made commitments to contribute to the movement via the Plant-a-Tree programme through NParks' registered charity and IPC, the Garden City Fund.

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	ANNEX B: PROGRESS OF KEY CITY IN NATURE TARGETS				
S/N	Key Strategies	(Year to Achieve) Targets	Key Progress (as of Jan 2024)		
1	Expanding the Nature Park Network	(2030) Have an additional 200 ha of new nature parks (from 2020 baseline)	Since Nov 2023, Lim Chu Kang Nature Park has been open to the public for curated programmes and activities, while habitat enhancement works are ongoing. Five new nature parks are currently being established – Mandai Mangrove and Mudflat Nature Park, Khatib Bongsu Nature Park, Alexandra Nature Park, Bukit Batok Hillside Nature Park and Teachers' Estate Nature Park.		
2	Intensifying nature in gardens and parks	 (2026) Develop over 130 ha of new parks, and enhance around 170 ha of existing parks with more lush vegetation and natural landscapes (2030) Restore and enhance 80 ha of forest, marine, and coastal habitats 	The 60 ha Lakeside Garden in Jurong Lake Gardens was completed in Apr 2023, with the opening of a new northern section. There are plans to rejuvenate 13 southern parks, which include three planned Destination Parks, to provide more nature-based recreational opportunities along the Southern Ridges and west coast. Over 40 ha of forest, marine and coastal habitats have been restored and enhanced.		
		 (2030) Implement species recovery plans for 100 plant species and 60 animal species (2030) Have 30 Therapeutic Gardens in parks across Singapore by 2030 	Species recovery plans are being implemented for over 80 plantspecies and over 40 animal species.There are 14 Therapeutic Gardens in parks across Singapore.		
3	Restoring nature into the urban landscape	(2030) Have 200 ha of skyrise greenery	Over 190 ha of skyrise greenery has been implemented across Singapore.		
3		(2030) Plant at least 170,000 more trees in industrial estates (from 2020 baseline)	Over 115,000 trees have been planted in industrial estates.		
4	Strengthening connectivity between Singapore's green spaces	(2030) Have 500 km of park connectors (2030) Every household will be within 10- minute walk from a park	There are currently over 380 km of park connectors.Over 9 in 10 households are within a 10-minute walk from a park.		
		(2030) Have 300 km of Nature Ways	Approximately 210 km of Nature Ways have been implemented.		
		(2030) Plant 1 million more trees across Singapore	Since the launch of the OneMillionTrees movement, more than 640,000 trees have been planted across Singapore, involving more than 100,000 members of the community.		

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Translated terms for COS 2024

City in Nature	大自然里的城市
	Bandar Dalam Alam Semula Jadi
	இயற்கையில் ஒரு நகரம்
Biosurveillance Research Programme	生物监测研究计划
	Program Penyelidikan Biosurveillance
	உயிரியல் கண்காணிப்பு ஆய்வுத்
	திட்டம்
Cat management framework	猫只管理框架
CITES Global Youth Network	濒危野生动植物种国际贸易公约 (CITES) 全
	球青年网络
Community in Bloom	锦簇社区
Community in Nature	保育自然社区
Destination Parks	亮点公园
Ecological Profiling Exercise	生态概况剖析
Friends of the Parks	公园之友
Garden City Fund	花园城市基金
Natural capital	自然资本
Nature Conservation Masterplan	自然保护总蓝图
Nature Park Network	自然公园步道网络
Nature playgardens	亲自然游乐园林
Nature Corridors	自然绿道
Nature Kakis Chapters	大自然之友分会
Nature Kakis Network	大自然之友网络
Nature Ways	自然连道
Nature-based solutions	基以自然的解决方案
One Health	同一健康
OneMillionTrees movement	百万树木运动
Park Connector Network	连道计划
Plant-a-Tree programme	个人植树计划
Singapore Green Plan 2030	2030年新加坡绿色发展蓝图
Skyrise greenery	空中绿化
Species recovery	物种复育
Species Recovery Programme	物种复育计划
Therapeutic Garden	康疗花园
Therapeutic horticulture	园艺康疗
Therapeutic landscapes	康疗景观
Youth Stewards for Nature programme	青年自然管家计划
Zoonotic diseases	动物源疾病



Translated terms of parks/ green spaces

Bishan-Ang Mo Kio Park	碧山 – 宏茂桥公园
Bukit Batok Nature Corridor	武吉巴督自然绿道
Bukit Timah Nature Reserve	武吉知马自然保护区
Cashin House	启信屋
Central Catchment Nature Reserve	中央集水区自然保护区
Clementi Nature Corridor	金文泰自然绿道
HortPark	园艺园林
Jurong Lake Gardens	裕廊湖花园
Khatib Bongsu Nature Park	卡迪逢苏自然公园
Khatib Nature Corridor	卡迪自然绿道
KPMG Wellness Garden	KPMG 养生园
Kranji Coastal Nature Park	克兰芝海岸自然公园
Labrador Nature Park	拉柏多自然公园
Labrador Nature Reserve	拉柏多自然保护区
Lakeside Garden	湖畔花园
Lim Chu Kang Nature Park	林厝港自然公园
Lornie Nature Corridor	罗尼自然绿道
Mandai Mangrove and Mudflat Nature Park	万礼红树林和滩涂自然公园
Pulau Ubin	乌敏岛
Rail Corridor	铁道走廊
Sembawang Park	三巴旺公园
Singapore Botanic Gardens	新加坡植物园
Southern Ridges	南部山脊
Sun Plaza Park	太阳广场公园
Sungei Buloh Wetland Reserve	双溪布洛湿地保护区
Sungei Durian	双溪榴莲
West Coast Park	西海岸公园
Woodlands Healing Garden	兀兰疗愈花园
Yishun Pond Park	义顺池塘公园