

Pillar

3

ENVIRONMENTAL AND BIODIVERSITY CONSERVATION

To drive impactful efforts in nature conservation and biodiversity stewardship in our developments

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Photo: Celadon City

SUSTAINABILITY REPORT

A KEY ASPECT OF THE GAMUDA GREEN PLAN 2025 (GGP 2025) IS THE COMMITMENT TO SAFEGUARD THE NATURAL ENVIRONMENT.

BIODIVERSITY IS CRUCIAL IN DEFINING THE HEALTH OF AN ECOSYSTEM BECAUSE A MORE BIODIVERSE ECOSYSTEM MEANS A HEALTHIER ENVIRONMENT FOR LIVING THINGS TO INHABIT.

For Gamuda, healthy biodiversity ensures a rich and natural environment that supports our developments. Our biodiversity strategies within our parks help contribute to food and water security through community gardens.

Our sustainable landscape management and maintenance fortifies an economically-driven biodiversity approach, such as native fruit species are attracting pollinators instead of the ornamental tree while minimising the use of chemical fertilisers.

Biodiversity also mitigates climate change and supports the local way of life, especially for indigenous communities in Malaysia known as *Orang Asli*, as well as farmers, fishermen and others who live off the land. Biodiversity is the heart of sustainable development and human well-being, and its conservation forms the core of the United Nations 2030 Agenda for Sustainable Development.

Gamuda's significant effort in this material issue is the establishment of Gamuda Parks in 2018 to address biodiversity and environmental conservation.

**Proactive environmental approach:
Key biodiversity conservation initiatives**

1

Establishment of Wetlands Arboretum with focus on urban forest and research laboratory by the end of 2022

2

Focus on Paya Indah Discovery Wetlands (PIDW) conservation programme and conduct scheduled biodiversity audits and carbon stock measurements by 2023

3

Continue with the ongoing commitment to planting at least five percent trees species in the International Union for Conservation of Nature (IUCN) Red List

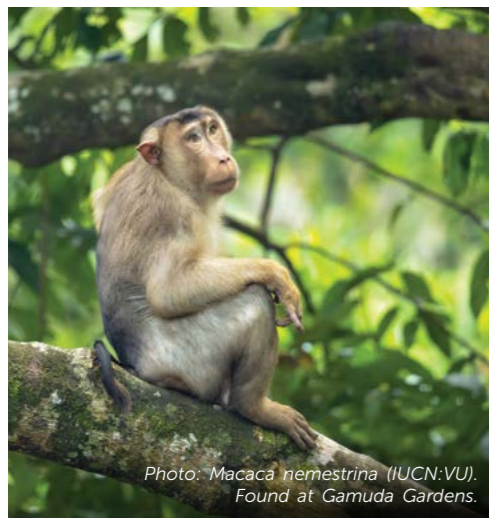


Photo: *Macaca nemestrina* (IUCN:VU). Found at Gamuda Gardens.

No	Details
1	GAMUDA PARKS AWARENESS PROGRAMMES
a)	Gamuda Parks Academy Nature School Setup and Programmes
b)	International Day for Biological Diversity 2021 (Virtual event)
c)	GParks Ranger School Programme @ XPLORIA
2	GAMUDA PARKS SCIENTIFIC RESEARCH
a)	Gamuda Parks Experts
b)	Soil Carbon Assessment
c)	Biodiversity Audit (Kota Permai Golf Club, Kota Kemuning and Bandar Botanic)
d)	Tree Tag and Identified for Preservation at Gamuda Cove

BIODIVERSITY AUDITS

Gamuda through Gamuda Parks is the first property developer to pledge to scientifically audit the health of the natural environments of its developments in Malaysia. Gamuda Parks periodically conducts internal and external biodiversity baseline audits based on the targets stated in Gamuda Parks Biodiversity Policy.

Since 2018, Gamuda Parks has conducted nine biodiversity audits (seven completed, two in progress) across our developments. These audits were jointly conducted with the Forest Research Institute of Malaysia (FRIM). We have illustrated the summary of our biodiversity assessments since 2018, including our latest FY2021 assessments at Horizon Hills and Celadon City.

Regarding our Tree Tagging and Preservation programme at Gamuda Cove, our FY2021 assessment found that the programme achieved the following milestones to date:

→ **593** trees under preservation were identified and tagged

→ **10** species identified as Least Concerned (LC) have been selected for conservation

→ **360** trees and **10** *Macaranga spp.* transplanted for Phase One at Wetlands Theme Park

→ **1,200** trees preserved for Phase One at Forest Park

→ **27** *Melicope Lunu Ankenda* and **18** *Pteleocarpa Lamponga* transplanted at Forest Park

→ **20** *Melicope Lunu Ankenda* transplanted at Gamuda Cove Central Park

Thus far, the efforts and results achieved have been encouraging. Gamuda Parks has completed tree-tagging in Gamuda Gardens Central Park with 5,531 trees tagged and ready to be uploaded into the Fieldview system by the end of 2021.

We are currently working on expanding our biodiversity audits to include carbon sequestration exercises which will indirectly monitor the productivity of ecosystem services contributed by trees.

In September 2021, we have completed our soil carbon stock assessment in Wetlands Forest Park, Gamuda Cove to measure carbon stored within trees and soil.

IUCN RED LIST OF ENDANGERED SPECIES

Through the aforementioned biodiversity audits, Gamuda has identified IUCN Red List plants and animals within the following Gamuda developments: Jade Hills, Gamuda Gardens, Gamuda Cove, PIDW, Celadon City and Valencia. This discovery has enabled conservation and protection efforts of these endangered species by Gamuda and the respective environmental agencies.

IUCN Red List Species Identified	
Critically Endangered (CR)	7
Endangered (EN)	12
Vulnerable (VU)	21
Near Threatened (NT)	28



Photo: *Lesser Adjutant* (IUCN: VU). Found at Paya Indah Discovery Wetlands.

SUSTAINABILITY REPORT

OUR CONSERVATION INITIATIVES

Conduct tree mapping assessment to measure cooling effect of green spaces in Celadon City

**01
CELADON CITY**

Status: **Completed**



Total Species:
170 species

- Valuable Flora Species:**
Pterocarpus indicus (EN)
Pterocarpus macrocarpus (EN)
Anisoptera costata (EN)
Dipterocarpus alatus (VU)

- Hopea adorata (VU)*
Azelia xylocarpa (EN)
Khaya senegalensis (VU)
Swietenia macrophylla (VU)

FAUNA

Total Species:
97 species

Valuable Fauna Species:
-

- 29** bird species
 7 fish species
 8 amphibian species
4 mammal species
 39 insect species
 10 reptile species

OUR CONSERVATION INITIATIVES

Introduction of bee harvesting to encourage pollination within Horizon Hills golf course

**02
HORIZON HILLS**

Status: **Completed**



Total Species:
72 species

Valuable Flora Species:
Melaleuca cajuputi (VU)

FAUNA

Total Species:
54 species

- Valuable Fauna Species:**
Mycteria cinerea (EN)
Mycteria leucocephala (NT)
Psittacula Longicauda (VU)
Acridotheres javanicus (VU)

- 39** bird species
6 mammal species
4 reptile species
5 amphibian species

**03
PAYA INDAH DISCOVERY WETLANDS**

Status: **Completed**



Total Species:
160 species

- Valuable Flora Species:**
Dryobalanops aromatica (VU)
Hopea helferi (EN)
Shorea materialis (VU)
Shorea roxburghii (VU)

FAUNA

Total Species:
276 species

- Valuable Fauna Species:**
 Pig-nosed Turtle (EN)
 Ambonia Box Turtle (VU)
 Yellow-headed Temple Turtle (EN)
 Giant Asian Pond Turtle (VU)
 Malaysian Giant Tortoise (EN)
 Black Marsh Turtle (VU)
 Red-footed Tortoise (VU)
 Asian forest Tortoise (CR)
 Yellow-headed Tortoise (CR)
 Radiated Tortoise (CR)
 Yangtze Giant Softshell Turtle (CR)
 Dusky Leaf Langur (NT)
 Grey-headed Fish Eagle (NT)
 Black Hornbill (NT)
 Oriental Pied Hornbill (NT)
 Rhinoceros Hornbill (NT)
 Fiery Minivet (NT)
 Lesser Adjutant (VU)
 Jambu Fruit Dove (NT)
 Black Magpie (NT)
 Chestnutbellied Malkoha (NT)
 Black-bellied Malkoha (NT)
 Masked Finfoot (EN)
 Red-crowned Barbet (NT)
 Buff-necked Woodpecker (NT)
 Streaked Bulbul (NT)
 Scaly-breasted Bulbul (NT)
 Glossy Ibis (NT)
 Rufouscrowned Babbler (NT)
 Short-tailed Babbler (NT)
 White Chested Babbler (NT)
 Striped TitBabbler (NT)

OUR CONSERVATION INITIATIVES

Initiate an interactive corner called Gamuda Parks Botanica to showcase the richness of biodiversity in Jade Hills

**04
JADE HILLS**

Status: **Completed**



Total Species:
57 species

- Valuable Flora Species:**
Hopea adorata (VU)
Podocarpus polystachyus (NT)
Dalbergia latifolia (VU)
Pimenta racemose (VU)
Kopsia arborea (CR)

FAUNA

Total Species:
73 species

Valuable Fauna Species:
-

OUR CONSERVATION INITIATIVES

Allocation of Gamuda Parks Interpretative Board at high biodiversity area. Implementation of Quick Response (QR) code feature at every valuable tree seamlessly directs users to more detailed information of the specific tree

**05
VALENCIA**

Status: **Completed**



Total Species:
345 species

- Valuable Flora Species:**
Hopea Subalata (CR)
Dipterocarpus chartaceus (VU)
Dipterocarpus kerrii (VU)
Hopea mengarawan (VU)
Hopea adorata (VU)
Shorea materialis (VU)
Agathis borneensis (NT)
Dryobalanops aromatica (NT)
Hopea griffithii (NT)
Shorea roxburghii (NT)
Shorea sumatrana (NT)
Elaeocarpus grandiflorus (NT)

FAUNA

Total Species:
46 species

Valuable Fauna Species:
-

OUR CONSERVATION INITIATIVES

Tree planting of *Hopea Subalata*, a critically endangered tree species as listed in the IUCN Red List

**06
GAMUDA GARDENS**

Status: **Completed**



Total Species:
96 species

- Valuable Flora Species:**
 Golden Cane Palm, *Dypsis lutescens (NT)*
 Angsana, *Pterocarpus indicus (VU)*

FAUNA

Total Species:
81 species

- Valuable Fauna Species:**
 Buff-necked Woodpecker (NT)
 Chestnut-bellied Malkoha (NT)
 Grey-headed Fish Eagle (NT)
Macaca nemestrina (VU)

OUR CONSERVATION INITIATIVES

Preserve and transplant of 50 specimens of *Melicope lunu akenda*, into Gamuda Cove Central Park

**07
GAMUDA COVE**

Status: **Completed**



Total Species:
47 species

- Valuable Flora Species:**
Melicope lunu-akenda (VU)
Pterocarpus Indicus (VU)

FAUNA

Total Species:
106 species

- Valuable Fauna Species:**
 Pig-tailed Macaque (VU)
 Ashy Tailorbird (NT)
 Chestnut-bellied Malkoha (NT)
 Grey-headed Fish Eagle (NT)
 Buff-necked Woodpecker (NT)
 Red Jungle Fowl (NT)

SUSTAINABILITY REPORT



WETLANDS ARBORETUM

The Wetlands is located next to Gamuda Cove development. It is classified as a high-biodiversity value area and home to more than 300 protected wetlands species, aquatic plants and marshes.

In collaboration with the non-governmental organisation (NGO) Global Environment Centre (GEC), the Selangor State Forestry Department and the *Orang Asli* Development Department (JAKOA), Gamuda's involvement is aimed at arresting further degradation of the site and to safeguard the rich biodiversity of the forest reserve. In FY2021, we have engaged with multiple stakeholder such as botanical and flora experts, and the local native communities.

Gamuda is now focused on reviving the site as a sustainable ecological tourism site, complete with the establishment of a Wetlands Arboretum (due to open by the end of 2022) to foster and expand biodiversity education and research. As an adjacent landowner, Gamuda has also committed towards providing funding and resources for rehabilitating the 2,372 acres Kuala Langat North Forest Reserve.

The centre of all these efforts is the establishment of a local community group to help with the forest patrols in the prevention of fire, to support the implementation of the Forest Fire Management Plan, and to create awareness among primary school children in peat swamp forest conservation.

In support of the Ministry of Energy and Natural Resources 100 Million Trees campaign, as well as global climate change relief efforts, the Group via Gamuda Parks continues to pursue its target of #OneMillionTrees, to be planted by 2023. The commitment to achieve #OneMillion trees and saplings by 2023 is further reflected in Gamuda's Advance Tree Planting programme. The programmes involve employing nurseries where trees are grown in ideal, near-pristine conditions for two years or more, with optimal maintenance practices, after which, the trees are ready for transplanting. Trees harvested from the nursery are immediately planted to reduce stress and to ensure faster recovery.

 **As an adjacent landowner, Gamuda has also committed towards providing funding and resources for rehabilitating the 2,372 acres Kuala Langat North Forest Reserve.**

MIYAWAKI METHOD

Tree planting and forest restoration are undertaken using the Miyawaki forest restoration method, whereby the aim is to cultivate fast-growing native forest ecosystems in urban locations from degraded soils within a shorter 20 to 30-year period. The technique is supposed to ensure that the growth is 10 times faster and 30 times denser than usual. It involves planting a group of native species in an area and becomes maintenance free after the first three years. The urban forest is targeted to boost the height of the trees up to 30m and to attract at least a minimum of five species of micro fauna. This approach is in line with Goal Three of the National Policy on Biological Diversity 2016-2025.

The Miyawaki method anchors our #OneMillionTrees target throughout our developments, namely Gamuda Gardens, Gamuda Cove, Horizon Hills, and twentyfive.7. A great testament of the Miyawaki method is the approximately 8,000 trees planted across Gamuda Gardens Central Park. This not only provides natural enclosure for birds through overstorey tree clusters but also the shade for Central Park visitors. As of the end of FY2021, Gamuda has planted 302,081 trees across our developments.

EMPLOYMENT AND EDUCATION FOR THE INDIGENOUS COMMUNITY

As part of our communal approach, we are committed to empowering the indigenous communities via education and employment opportunities. We acknowledge the experience and knowledge of indigenous people on biodiversity by having them be part of Gamuda nature conservation initiatives. This is strengthened with partnering environmental NGOs like Binturong Alam Ventures and The Asli Co as they have the skills, expertise and knowledge in biodiversity protection. This common-goal partnership between Gamuda, indigenous people and NGOs sets a positive impact and mindset to nurture *Orang Asli* communities adjacent to the Hulu Langat Forest Reserve and Gamuda Cove while conserving the surrounding environment.

the Wild Seed Tree Bank, Advance Tree Planting, sale of crafts and farm produce, and eco-education programmes. Adopting a participative approach by including the indigenous community has yielded significant positive improvements. The latter's vast knowledge on the role of trees in forest ecosystems has enabled Gamuda to be more effective in its seeding programmes, medicinal wetlands and fruit tree planting across its developments.

We also have made societal impact to 165 *Orang Asli* children by supporting their education needs by setting up the avenue for classes and providing tablets. We run after-school classes with dedicated tutors who have the background in teaching underserved communities to ensure consistent learning for these deserving children.

Our partnership with *Orang Asli* is strengthened with the **200 employment opportunities at our Arboretum and nurseries via**

