

Mandai

WILDLIFE GROUP

YEARBOOK 2023 - 2024



Mandai Wildlife Group is dedicated to caring for the planet and protecting animals and nature. Conservation education is intrinsic to all interactions with the Group, to inspire action for a healthier world.

Mandai Wildlife Group is the steward of Mandai Wildlife Reserve, a unique wildlife and nature destination in Singapore that is home to world-renowned wildlife parks which connect guests to the fascinating world of wildlife. The Group is driving an exciting rejuvenation plan at Mandai Wildlife Reserve, adjacent to Singapore's Central Catchment Nature Reserve, that will integrate five wildlife parks with distinctive nature-themed experiences, green public spaces and an eco-friendly resort.

The wildlife parks managed by the Group are accredited by two of the top international regional zoo associations, European Association of Zoos and Aquaria (EAZA), and Zoo and Aquarium Association of Australasia (ZAA), and the Group is an active member of the Southeast Asian Zoos and Aquariums Association (SEAZA) and the World Association of Zoos and Aquariums (WAZA).

Mandai Wildlife Group is committed to the vision of sustainable populations of wildlife and human communities thriving in functioning ecosystems. The Group will contribute by connecting people with wildlife, championing sustainable living, as well as participating in and supporting conservation efforts to safeguard wildlife and their habitats. The actions and contributions of the Mandai family of entities and brands are also aligned to the UN Sustainable Development Goals, in their focus to nurture a healthier world. The Group will work with our partners and like-minded collaborators to make a positive impact.

The Group provides funding and in-kind support to Mandai Nature for conservation work across Southeast Asia.

Mandai X, an entity that is part of the Group, establishes and operates new lines of business anchored in creating positive outcomes for nature and wildlife.

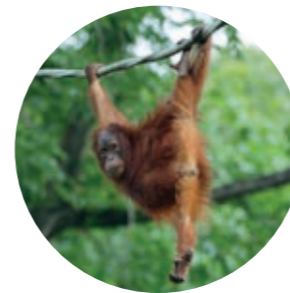
Purpose

Building a world where people and wildlife thrive together

Vision

To create meaningful connections and experiences that inspire people to protect nature and wildlife

Values



Excellence

We learn and strive for the highest standards



Teamwork

We work together to achieve more



Hospitality

We serve from the heart



Integrity

We are honest and fair



Care for wildlife

We protect and care for nature and wildlife



Sustainability

We embrace sustainable best practices



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Message

from Acting Chairman & Group Chief Executive Officer



CHONG SIAK CHING
ACTING CHAIRMAN



Mike Barclay
GROUP CEO

We began the year with a major milestone. After almost a decade of painstaking planning, designing and constructing, we opened our first substantial, guest-facing feature under our Mandai Rejuvenation Project. Bird Paradise, our new bird park, opened its doors to the public on Monday 8th May 2023, along with the Mandai Wildlife West public space that sits in front of the park. The park's May to November soft opening period drew in some 580,000 guests who gave very positive feedback on Bird Paradise for the immersive experience it offers. Bird Paradise's grand opening on 15 November 2023 marked an opportunity to thank everyone involved in creating Asia's largest bird park, and to celebrate its best-in-class avian hospital, breeding facility and strong focus on conserving threatened avian species.

Mandai Wildlife West (MWW) will ultimately serve as the gateway to both Bird Paradise and the upcoming Rainforest Wild Asia zoological park. This public node features an impressive waterfall, fed by a stream that runs through corridors of native plants that have been designed to act as refuges for native wildlife. MWW also includes nature-themed playgrounds, as well as a good array of restaurants and retail shops that

feature sustainable menu and merchandising options. We are thrilled that Bird Paradise and MWW have won BCA's Universal Design Excellence Award and NParks' Landscape Excellence Assessment Framework (LEAF) Platinum certification. These accolades underscore our commitment to the design principles of inclusion, sustainability and integration.

Development of the remaining features is progressing at pace. We look forward to the next phase when we will unveil the scenic Mandai Boardwalk skirting Upper Seletar Reservoir, the much-anticipated Mandai Rainforest Resort, and our fifth wildlife park Rainforest Wild Asia, which will be the first zoo in the region to integrate adventure elements into its core design. These features complement the existing attractions, taking us closer to transforming the Mandai Wildlife Reserve into an integrated precinct, a nature and wildlife destination where guests can learn, play, dine, shop, stay and recharge.

At the same time, we continue to rejuvenate our existing parks to ensure that they offer equally compelling wildlife experiences. Over this period, we marked the completion of the new KidzWorld at

Singapore Zoo, and Night Safari Grand Finale exhibits featuring the majestic bull elephant Chawang. Singapore Zoo turned 50 with a whole array of 'Golden ZOObilee' celebrations, while River Wonder invited guests to take a Voyage of Rediscovery on the 10th anniversary of the park's official opening. These initiatives, together with high impact marketing campaigns and strong support from trade partners, yielded impressive results. Attendance across our four parks substantially recovered post-Covid, growing 55% to hit 4.43 million guests. The growth presented tremendous opportunities for us to connect more people with nature and inspire a collective commitment to our purpose of building a world where people and wildlife thriving together.

We also prioritised strengthening our role in the conservation of threatened species and biodiverse habitats, linking up research efforts and breeding programmes at the Mandai Wildlife Reserve with our direct support for field conservation work through Mandai Nature, our conservation arm. We are heartened that our support is contributing to the protection of over 50 threatened species and 443,300 hectares of critical landscape in Southeast Asia, while benefiting local communities living in and around these conservation projects.

In recent years, we have witnessed a rise in extreme weather events associated with global warming. As we prepare for a wetter and warmer Singapore in future years, we continue to prioritise enhancing thermal comfort and putting in place wet weather mitigating measures for our guests. Safeguarding our environment through showcasing best sustainable practices and decarbonising our operations has become even more urgent. To this end, we are committed to Net-Zero GHG (greenhouse gas) emissions across our value chain by 2050, a process that will be validated by our commitment to the Science Based Targets Initiative (SBTi).

While we are pleased to have maintained a high score of 87% in surveyed guest satisfaction, we are cognisant of the need to outdo ourselves in order to unlock the potential of the Mandai Wildlife Reserve. We seek to nurture a strong innovative culture in order to elevate animal welfare standards, inspire our guests and uplift our collective productivity. With innovation in mind, we have inked an agreement with the Info Media Development Authority to allow us access to

their dynamic technology ecosystem for innovative solutions.




























In embracing inclusivity, we are collaborating with educators from Special Education schools to curate programmes and resources for children with autism and different abilities. Over this past year we hosted close to 31,000 beneficiaries from various social service agencies in our parks, including targeted programming for at-risk youths and families impacted by incarceration.

Most memorably, we bade a bittersweet farewell to Le Le, the first and only giant panda cub born in Singapore, when he departed for China on 16 January 2024. All giant pandas bred outside China are returned to their homeland for conservation breeding when they grow independent of their mother at about the age of two. We are privileged to have cared for Le Le, who was a beacon of hope shining through the dark days of the Covid pandemic. His spirited personality sparked interest in panda conservation, and we are certain that he will contribute further to the cause in his new home.

It has been another momentous year for the Mandai Wildlife Group. We thank our board, committee members and advisory panel members for their invaluable guidance, we applaud our staff and volunteers for their dedication, and we greatly appreciate our extraordinary local community in Singapore – we could not do what we do without your support!

In addition, we would like to thank Mr Dilhan Pillay Sandrasegara for his services to the board and for always encouraging the management team to be a force for good in Singapore and throughout the region. Finally, we would like to express our heartfelt appreciation to Mr S Dhanabalan, who stepped down as our Chairman after officiating the official opening of Bird Paradise on 15 November 2023. Mr Dhanabalan was quite simply central to everything Mandai Wildlife Group achieved during his 8-year tenure as Chairman. He guided us to design with imagination and ambition, and to search widely for sources of inspiration. Mr Dhanabalan was also instrumental in securing the funding needed for Mandai Rejuvenation Project, and always reminded us that the Mandai Wildlife Reserve must remain socially inclusive and become a refuge for our native wildlife to thrive in.

The Triple Bottom Line, Strategic Thrusts & Sustainable Development Goals (SDGs)

3Ps	STRATEGIC THRUSTS	SDGs
PLANET	Provide World-class Care For Our Living Collection	   
	Be A Regional Leader In Environmental Sustainability & Conservation	     
PEOPLE	Apply Leading Organisation & HR Practices	     
	Forge A Strong National Love & Pride For Our Parks	    
PERFORMANCE	Create Exceptional Guest Experiences	   
	Ensure Long-term Commercial Viability	    

Our Commitment To Key Sustainable Development Goals (SDGs)



QUALITY EDUCATION

Our parks are living classrooms that strengthen early childhood and multi-disciplinary learning, including the mother tongue languages, as well as 21st century competencies through volunteerism, work attachments and career guidance. Through our educational offerings, we empower guests, including those with special needs and from disadvantaged backgrounds, with the chance to learn about wildlife and connect with nature. Robust training for our staff facilitates lifelong learning and acquisition of specialist skills.



AFFORDABLE AND CLEAN ENERGY

We monitor energy consumption in our parks through a comprehensive energy metering network. We are converting to energy-saving electrical devices and solar panels. Our entire tram fleet runs on electricity. The principle of reducing energy consumption guides all development work in Mandai.



SUSTAINABLE CITIES AND COMMUNITIES

We galvanise the community to refuse single-use plastic and to choose sustainably sourced products. We have eliminated guest-facing single-use fossil-based plastics in our F&B outlets. We serve wildlife-friendly coffee and sustainable seafood at our F&B outlets and offer sustainable merchandise at retail outlets to advocate for sustainable living.



RESPONSIBLE CONSUMPTION AND PRODUCTION

Our green procurement road map, with its clear targets, guides us to work with suppliers to procure sustainable goods and services. We diversify and source for more sustainable alternatives for our animal feed, supporting local produce where possible, to reduce our carbon footprint. Other than reducing energy and water consumption, we are working towards achieving zero waste through circularity.



CLIMATE ACTION

We decarbonise our operations in every possible way to mitigate climate change and support our goal of reaching net zero greenhouse gas emissions across our value chain by FY2050.



LIFE BELOW WATER

Through River Wonders, we highlight the fragility of river ecosystems to our guests, and encourage them to take action to protect freshwater life forms, which are disappearing faster than those on land or in the sea. We support local and regional conservation projects to protect biodiversity in aquatic ecosystems. We repatriated the critically endangered Rote snake-necked turtles to Indonesia for eventual reintroduction on their native Rote Island. We spread the message on plastic pollution and advocate for reduced usage or avoidance of single-use plastics.



LIFE ON LAND

We provide world-class care for our animals, many of whom serve as ambassadors to connect people with the natural world. Through conservation messaging with a strong call to action, we encourage people to do their part for wildlife. We work with other zoos through Managed Species Programmes to help save threatened species. We contribute to these global programmes as species coordinators for 12 threatened species. Through our conservation arm Mandai Nature, we support local and regional conservation work to reverse species loss, protect ecosystems, and engage local communities. We adopt IUCN's One Plan Approach to synergise our in-park conservation efforts with field work for species conservation in their native habitat.



PARTNERSHIP FOR THE GOALS

We forge strong partnerships, locally and globally, with wildlife institutions, conservationists, NGOs, governmental agencies, businesses, sponsors, donors, schools, volunteers and various communities to achieve our goals.

Board of Directors MANDAI WILDLIFE GROUP

ACTING CHAIRMAN

(from 16 November 2023)

Ms CHONG Siak Ching

Ms Chong was the Chief Executive Officer of National Gallery Singapore and Head of the Visual Arts Cluster Singapore comprising the Singapore Art Museum, Singapore Tyler Print Institute and the National Gallery Singapore till 31 March 2024. She is the Chair of the Yong Siew Toh Conservatory of Music in the National University of Singapore (NUS), a member of the Yale-NUS Governing Board and Singapore's Non-Resident Ambassador to the Republic of Chile.

CHAIRMAN EMERITUS

(from 16 November 2023)

Mr SUPPIAH Dhanabalan

Mr S Dhanabalan is a Member of Presidential Council for Minority Rights and Chairman Emeritus of Temasek Trust Ltd.

DIRECTORS

Mr Mike BARCLAY

Mr Barclay is the Group CEO and Executive Director of Mandai Park Holdings. He also serves as Chairman of Mandai X, a wholly-owned subsidiary of Mandai Park Holdings, and is a Non-Executive Director of Mandai Nature, the conservation arm of Mandai Wildlife Group. Prior to Mandai, Mr Barclay was CEO of Sentosa Development Corporation. This followed on from stints as Regional Vice President Asia for the International Air Transport Association and Chief Executive of SilkAir. Mr Barclay began his career with Singapore Airlines, holding various portfolios in Singapore, Germany, Switzerland, Belgium and the UK.

Ms Claire CHIANG

(Till 15 March 2024)

Ms Chiang is the co-founder of Banyan Tree Hotels and Resorts, Chair of China Business Development, and Global Head of Learning and Talent Development at Banyan Tree Management Academy. She chairs Banyan Tree Global Foundation, and its Enterprise Environmental and Community Fund in partnership with the Chinese Environmental Protection Foundation. She is a member of the School of Hotel and Tourism Management of Hong Kong Polytechnic University. She chairs the Singapore Book Council and Shirin Fozdar Programme at Singapore Management University.

In 2021, she was appointed the Advisory Board Member of the Conference Board Global Sustainability Centre (Europe) and the Climate Governance Singapore Advisory Board.

Mr Stephen FORSHAW

Mr Forshaw is the Chief Representative for Airbus in Australia, New Zealand and the Pacific. He is also a Board Director of Perfection Fresh Pty Ltd, an Australian producer of fresh fruit and vegetables, the European Australian Business Council, and Airbus Australia Pacific Limited. He has previously served in corporate affairs leadership roles with Singapore Airlines, Microsoft and Temasek.

Mr KEE Teck Koon

Mr Kee is the Chairman of NTUC Fairprice Co-operative Limited, NTUC Fairprice Foundation and Deputy Chairman of NTUC Enterprise Co-operative Limited, the holding organisation of FairPrice Group, NTUC First Campus, NTUC Health, Income Insurance Limited, NTUC LearningHub, and Mercatus. He holds directorships in Changi Airport Group, Tangram Asia Capital LLP, and Trust Bank Singapore Limited. He is an Advisor of Income Insurance Limited and Capitaland Investment Limited and a member of the Angsana Fund Investment Committee of the Singapore Labour Foundation.

Er Dr LEE Bee Wah

Er Dr Lee is a Lead Independent Director of public listed Koh Brothers Group Limited and Independent Director of other public listed companies including MYP Ltd, Heeton Holdings Limited and HLH Group Limited. She is a Board Member of the Building and Construction Authority, a statutory board under the Ministry of National Development and chairs the Nanyang Technological University School of Civil and Environmental Engineering Advisory Committee.

Mr NG Lang

Mr Ng is the Chief Executive and Board Member of Singapore's Land Transport Authority (LTA). He is a member of the Singapore Management University Real Estate Programme Advisory Board and serves on the Advisory Board for the NUS College of Design and Engineering. Prior to LTA, Mr Ng was the CEO of JTC, CEO of the Urban Redevelopment Board, and CEO of National Parks Board. He also served in the Singapore Foreign Service and public healthcare sector. In 2018, he was awarded the Public Administration Medal (Gold) in recognition of his contribution to the Public Service.

Ms PEK Siok Lan

Ms Pek is the Head of Investment Stewardship at Temasek International. She was the General Counsel of Temasek for a decade, and was also a Global Executive Council member, serving on Temasek's investment, strategy and management committees. Before Temasek, Ms Pek was General Counsel for more than 20 years at the Singapore Technologies Group and ST Telemedia Group. She serves on the investment committee of Temasek Trust Asset Management Pte Ltd, a firm dedicated to impact investing and is a board member of BSR, a sustainable business consultancy.

Mr Dilhan Pillay SANDRASEGARA

(Till 31 March 2024)

Mr Sandrasegara was appointed Executive Director and CEO of Temasek Holdings on 1 October 2021 and is concurrently the CEO of Temasek International. Mr Sandrasegara has held various leadership roles in Temasek, including Head of Investment, Portfolio Management and Enterprise Development Groups. He has also led the Temasek market teams in Singapore and the Americas. Mr Sandrasegara serves as the Vice Chair of FCLTGlobal and is a board member of the Peterson Institute for International Economics. He is also a member of the Financial Centre Advisory Panel of the Monetary Authority of Singapore, the Advisory Board of the Tsinghua University School of Economics and Management, the Singapore Judicial Service Commission, the Singapore Research, Innovation and Enterprise Council, the Integrity Council for the Voluntary Carbon Market, the China Securities Regulatory Commission International Advisory Council and the Future Economy Advisory Panel.

Mr SIM Hwee Cher

Mr Sim is a Council Member of the National Youth Achievement Award Association, and Director of The Esplanade Co Ltd, UOL Group Ltd and Asia Capital Reinsurance Group Ltd.

Mr Keith TAN Kean Loong

Mr Tan was appointed as the Deputy Secretary (Industry) of the Ministry of Trade and Industry on 1 August 2023. He has held appointments in the Singapore Tourism Board, the Ministries of Defence and Home Affairs, as well as in the Public Service Division and Civil Service College. He is currently on the boards of the Urban Redevelopment Authority, Sentosa Development Corporation, JTC Corporation, and EDB Investment Pte Ltd.

Professor Emeritus Leo TAN

Professor Tan chairs the National Park Board's Garden City Fund, is a Board Member of Temasek Foundation and Temasek Foundation IPC, Governor of Asia-Europe Foundation, Fellow of the Singapore National Academy of Sciences and Governing Member of the Singapore Environmental Council.

Animal Welfare & Ethics Committee

CHAIRMAN:

Professor Leo TAN

SECRETARY:

Dr Guillaume DOUAY

MEMBERS:

Mr Mike BARCLAY

Dr CHANG Siow Foong

Dr CHENG Wen-Haur

Prof Joseph CHUN

Mr Vinayagan DHARMARAJAH

Dr Adrian LOO

Dr Leslie RETNAM

Education Advisory Panel

CHAIRMAN:

Dr TAY Kim Seng

MEMBERS:

Ms LIM Siew Gek

Dr Shaireen SELAMAT

Mrs June THAM-TOH Syn Yuen

Mr Eric YUM

Environmental Advisory Panel

CHAIRMAN:

Professor Peter NG

DEPUTY CHAIRMAN:

Er LIM Peng Hong

MEMBERS:

Dr Shawn LUM

Professor NG Soon Chye

Professor Erwin VIRAY

Professor Brenda YEOH

Corporate Services

Brand & Communications
•
Finance
•
Human Resources
•
Information Technology
•
Internal Audit
•
Legal
•
Procurement

Life Sciences & Operations

Animal Care
•
Animal Behaviour & Programmes
•
Veterinary Healthcare
•
Education
•
Exhibit Design
•
Facilities Management
•
Horticulture
•
Park Operations
•
Sustainable Solutions
•
Technical Services
•
Safety & Security

Transformation & Growth

Asset Development
•
Digital & Data
•
Food & Beverage
•
Park & Attractions Marketing
•
Partnership Development
•
Retail & Lifestyle
•
Sales & Experience Development
•
Transformation Office
•
Guest Experience Management
•
Group Strategy & Development

Development

Attractions Development
•
Cost, Contracts & Procurement
•
Project Management (East Zone)
•
Project Management (West Zone)
•
Strategic Planning

Mandai Wildlife Group has a conservation arm in **Mandai Nature** and a growth accelerator and venture building arm in **Mandai X**.

Mandai
N A T U R E

Mandai X

Mr Mike BARCLAY • Group Chief Executive Officer

CORPORATE SERVICES

Ms Shirley LIM • Group Chief Financial Officer
Mr Marcus HENG • Group Chief Human Resources Officer
Mr SIEW Yeow Loye • Chief Information Officer
Ms Sandra TSAO • General Counsel
Ms Suzanne HO • Senior Vice President, Brand & Communications
Ms Karen TAN • Vice President, Internal Audit
Mr Steven WONG • Vice President, Finance
Mr Thomas CHUA • Vice President, Information Technology
Mr OW YONG Haur Kit • Vice President Procurement

LIFE SCIENCES & OPERATIONS

Dr CHENG Wen-Haur • Deputy Chief Executive Officer (Life Sciences & Operations)
• Chief Life Sciences Officer
Dr Sonja LUZ • Chief Executive Officer (Mandai Nature)
Mr Melvin TAN • Chief Estate & Property Officer
Ms Sherri LIM • Chief Park Operations Officer
Ms Gail LAULE • Vice President, Animal Behaviour & Programmes
Dr Luis NEVES • Vice President, Animal Care
Ms May LOK • Vice President, Education
Mr CHAM Tud Yinn • Vice President, Exhibit Design
Mr Donald TAN • Vice President, Facilities Management
Mr George KYAW • Vice President, Horticulture
Ms Daisy LING • Vice President, Park Operations
Ms Maggie ANG • Vice President, Park Operations (West Node)
Mr Elisha TEO • Vice President, Safety & Security
Mr Kumar PILLAI • Vice President, Special Projects
Ms Rohaya SAHAROM • Vice President, Sustainability Solutions
Mr Andrew CHAI • Vice President, Technical Services
Dr XIE Shangzhe • Vice President, Veterinary Healthcare

TRANSFORMATION & GROWTH

Ms Belina LEE • Deputy Chief Executive Officer (Transformation & Growth)
• Chief Executive Officer (Mandai X)
Mr TEO Joo Leng • Chief Product Officer
Ms Jean CHOI • Chief Sales & Marketing Officer
Ms Isabel CHENG • Senior Vice President, Partnership Development
Ms Monet ALUQUIN • Vice President, Asset Development
Mr Damon WEE • Vice President, Digital & Data
Mr Steven TAN • Vice President, Food & Beverage
Ms Michelle CHOO • Vice President, Indoor Attractions
Ms Sandy LEE • Vice President, Park & Attractions Marketing
Ms Daisy TAN • Vice President, Retail & Lifestyle
Mr Edmas NEO • Vice President, Transformation Office

DEVELOPMENT

Mr Michael CHIN • President Development Projects
Mr David GOH • Project Director (East Zone)
Mr SIA Wee Long • Project Director (West Zone)
Mr Marc CREMADES • Vice President, Attractions Development
Mr Colin CHEW • Vice President, Cost, Contracts & Procurement
Mr Ivan WONG • Vice President, Strategic Planning

Adopters & Sponsors

Singapore Zoo

96 Capital Management Pte Ltd
 Advorio Asia Pacific Pte Ltd
 Agrocrop International Pte Ltd
 Akrisbis Systems Pte Ltd
 Capitaland Limited
 Chew's Agriculture Pte Ltd
 Coding Lab
 EnGro Corporation Limited
 EtonHouse International School
 Guardian Health & Beauty
 Haw Par Corporation Ltd
 Haw Par Healthcare Limited
 Henkel Singapore Pte Ltd
 Henkel Singapore Pte Ltd
 HiArt Pte Ltd
 Hong Leong Foundation
 Hotel Properties Limited
 Humphrey Oei Foundation
 Jason's Pet Relocation (Singapore)
 Kidz Meadow Childcare & Development Centre
 Kuok (Singapore) Limited
 Lee Foundation Singapore
 MI Limited
 MCC Singapore
 Mdm Kay Kuok
 Mitsui & Co. (Asia Pacific) Pte Ltd
 Mr and Mrs Kenneth Goh Hoon Chuan
 Mrs Christina Ong
 Ms Carrie Wan Burke
 Ms Goh Choi Fong
 Nikko Asset Management Asia Limited
 Petrochina International (Singapore) Pte Ltd
 Publicis Groupe
 Saksoft Pte Limited
 Schroder Investment Management (Singapore) Ltd
 Sesami (Singapore) Pte Ltd
 Starbucks Coffee Singapore Pte Ltd
 Swee Heng Bakery Pte Ltd
 TAG Industrial Pte Ltd
 Tan Chong International
 Tan Chong International
 Tencent
 The Norinchukin Bank (Singapore Branch)
 Tradecom Services Pte Ltd
 United Test and Assembly Center Ltd
 Valour Pets Global Pte Ltd
 W2 Industrial Services Hub Pte Ltd
 William Grant and Sons
 Wing Joo Loong Ginseng Hong (Singapore) Company Pte Ltd
 Wuthelam Holdings Pte Ltd
 Yew Kee Group
 Yokogawa Engineering Asia Pte Ltd
 Yuvabharathu International School Pte Ltd

Giant Tortoise, Belle
 Giant Tortoise, Claude
 Pygmy Hippopotamus, Divo
 Chimpanzee, Nini
 Rainforest Fights Back Show
 Chickens at Kidzworld
 Python, Bubbles
 Red River Hog Exhibit
 Pack Walk at Kidzworld
 Orangutan, Satria
 Leopard Exhibit
 Malayan Tigers Bongsu, Intan, Arhaa and Sali
 Chimpanzee, Gangga
 Anoa Exhibit
 Orangutan, Putra
 Fragile Forest Exhibit
 Orangutan, Adi
 Asian Elephant, Intan
 Giant Tortoise, Astove
 Falabella, Partidor
 Giraffes, Adhil and Balaji
 Garden With A View
 Malayan Sunbear Exhibit
 Asian Elephant, Komali
 Asian Elephant, Aprila
 Elephant Presentation
 Canine Clubhouse at Kidzworld
 Orangutans, Binte & Saloma
 Giant Tortoise, Kasey
 King Cobra Exhibit
 Pygmy Hippopotamus, Miata
 Lion Exhibit
 Lion, Simba
 Chimpanzee, Bianca
 Orangutans, Natu & Joko
 Falabella, Bollin
 Komodo Dragon Exhibit
 Asian Elephant, Gambir
 Giant Tortoise, Casela
 Giraffes, Marco and Jubilee
 Zebra Exhibit
 Ranger Stations
 Chimpanzee, Togo
 Chimpanzee, Ida
 Orangutan, Bino
 African Painted Dog Exhibit
 Falabella, Arabella
 Pygmy Hippopotamus, Minah
 Malayan Tiger, Sulong
 Rabbit Patch at Kidzworld
 Ducks at Kidzworld
 Chimpanzee, Jengo
 Asian Elephant, Jati

Night Safari

Goodwood Park Hotel Private Limited
 HashKey Capital Singapore Pte Ltd
 JTB Pte Ltd
 Khoo Teck Puat Foundation
 Mitsui & Co. (Asia Pacific) Pte Ltd
 Mr Chew Shouzi and Ms Vivian Kao
 Mr Martin Storey
 NEC Asia Pacific Pte Ltd
 Nomambhoy & Sons Pte Ltd
 Tencent
 Thai Beverage Public Company Limited
 The Koh Family
 Toppan Leefung Pte Ltd

River Wonders

Extra Space Self Storage
 Khoo Teck Puat Foundation
 Mitsui & Co. (Asia Pacific) Pte Ltd
 Pavilion Capital
 The Shaw Foundation Pte

Bird Paradise

Amazon Web Services
 Boeing
 Collins Aerospace
 Electronics & Engineering Pte Ltd
 Goodwood Park Hotel Private Limited
 Hong Leong Foundation
 Kellogg Asia Marketing Inc
 Kuok (Singapore) Limited
 Meta
 Mrs Verena and Mr Sharad Desai
 NooTrees
 Ocean Network Express
 Rwanda Development Board
 Singapore Life Ltd. (Singlife)
 Singapore Refining Company Private Limited
 Sony Electronics Singapore Pte Ltd
 The Shaw Foundation Pte
 Toppan Next Pte Ltd

The Fishing Cat Trail
 Asiatic Lion Exhibit
 Asian Elephant, Neha
 The Fishing Cat Trail
 African White Lion Exhibit
 White Tiger, Pasha
 Babirusa Exhibit
 Indian Rhino Exhibit
 White Tiger, Keysa
 Ranger Station
 Asian Elephant, Chawang
 Southern Three-banded Armadillo Exhibit
 Asian Elephant, Sang Wira

Giant River Otter Exhibit
 Red Panda Exhibit
 Mekong Giant Catfish Exhibit
 Giant Pandas, Kai Kai and Jia Jia
 Manatee Feeding Programme

Rhinoceros Hornbill at Winged Sanctuary
 Conservation project for the Philippine Eagles
 Amigo, Yellow-naped Parrot from Wings of the World Presentation
 Bali Myna at Winged Sanctuary
 Brahminy Kites from Predators on Wings Presentation
 Hong Leong Foundation Crimson Wetlands Aviary
 Wings of the World Presentation
 Kuok Group Wings of Asia Aviary
 SPED Education Programmes
 Straw-headed Bulbuls at Winged Sanctuary
 Nursing Rooms and Family Care Rooms
 Ocean Network Express Penguin Cove
 Rwanda Nyungwe Forest Heart of Africa
 Orchid Waterfall
 Wrinkled Hornbill at Winged Sanctuary
 Official Photography Partner
 Shaw Foundation Australian Outback Aviary
 Great Pied Hornbill at Winged Sanctuary

Adopters & Sponsors

Contributions Towards Animal Care

Lee Foundation Singapore
Ms Tan Hiang Lee
Ms Tan Sieu Lee
New Eden Charitable Trust
Pass It On Elab Pte Ltd

Bench, Sculpture and Tree Adoptions

Dr Chris Tan Kok Leong	Kapok Tree at Free-Ranging Orangutan Island
Dr Chris Tan Kok Leong	Bench at Free-Ranging Orangutan Island
Gaia Environment (S) Pte Ltd	Calophyllum inophyllum L Trees along Primate Kingdom
Moonday Studio	Bench at Free-Ranging Orangutan Island
Mr and Mrs Ong Seow Leong	Otter Sculptures at Otter Exhibit
Mr Andrew Ng Wai Hung	Bench at Giraffe Exhibit
Mr Felix Lim	Sandu Tree at Garden Pavillion
Mr Indra Widjaja	Rain Tree at African Painted Dog Exhibit
Mr Kelvin Chng	Sea Almond Tree near Ah Meng Memorial
Mr Morven Chin	Butterfruit Tree at White Tiger Exhibit
Mr Naresh Narasimhan	Rain Tree at Zebra Exhibit
Mr Ng Cheun Ser	Broad-leafed Mahogany Tree at Garden With A View
Mr Rik Van Dijk	Rain Tree at Giraffe Exhibit
Ms Annette Brinch Jensen	Bench at Giraffe Exhibit
Ms Lee Whai Yih	Bench at Otter Exhibit
Ms Phyllis Wong	Rain Tree at Giraffe Feeding Exhibit
Ms Tan Keng Keng	Sentol Tree along Rainforest Walk
Ms Verena Poh	Broad-leafed Mahogany Tree at Garden With A View
Nippon Express (Singapore) Pte Ltd	Yellow Saraca Tree along Free-Ranging Orangutan Island
OHBOY! Pictures Pte Ltd	Bench at White Rhino Exhibit
Temasek Capital Management Pte. Ltd.	Ficus Microcarpa Tree in Rwanda Nyungwe Forest Heart of Africa Aviary

Mandai Boardwalk

China Aviation Oil (Singapore) Corporation Ltd
The Chen Lin Trust

Trees
Damsselfly Rest Station

Event Sponsorships

Air New Zealand
Dr Tan Kheng Lian
GIC Limited
GIC Limited
Tan Chin Tuan Foundation
UFC Refresh

Mystical Bar at Night Safari
Kids in Play @ Mandai Wildlife Reserve Programme
Bird Paradise Opening Community Event
Mandai Gives Back
Kids in Play @ Mandai Wildlife Reserve Programme
Mandai Wildlife Run - Official Hydration Partner

Sponsorships In-Kind

BOM BOM Pte Ltd
Canon Medical Systems Asia Pte Ltd
KARL STORZ Endoscopy
Philips Electronics Singapore Pte Ltd
Singapore Airlines
Worms Inc.

Mandai Wildlife Bridge

Singapore Life Ltd. (Singlife)

Trees

Year In Review

FY 2023 – 2024

Bird Paradise officially opened on 15 November 2023 as Asia's largest bird park, boasting 3,800 birds across 400 species. It soft opened on 8 May 2023.

Grew total attendance by 55% to **4.43 million**, of which one million was contributed by Bird Paradise.

Supported over **40 local and regional field projects**, contributing to protection of more than 50 threatened species and 443,300 hectares of critical landscape in Southeast Asia.

Commemorated **Singapore Zoo's 50th birthday and River Wonder's 10th anniversary** with the Golden ZOOBILEE and Voyage of Rediscovery campaigns respectively.

Expanded our managed species programmes to **193 species**, up from 162 species, to help sustain threatened species under human care.

Inked Memorandum of Intent with IMDA to position Mandai as a **Living Lab for Innovation** to drive digital transformation.

Launched the new **KidzWorld**, a living classroom for animal encounters at Singapore Zoo on 25 October 2023.

Partnered Special Education schools to **co-create programmes and resources for special needs students** to enhance inclusivity in our parks and offerings.

Engaged a record **333,000** people on conservation and sustainability messaging.

Won **Outstanding Achievement in Sustainability** Singapore Tourism Awards 2023.

Bird Paradise Soars

Bird Paradise burst onto Singapore's attraction scene in a symphony of colours. The largest bird park in Asia, it is home to 3,800 birds across 400 species. It features one of the world's biggest cold salt-water penguin habitats and eight enormous walk-through aviaries that reflect different biomes such as dense African rainforests, South American wetlands, Australian dry eucalypt forests and more. Up to 80 bird species (and counting) can be found in these expansive habitats, carving out their niches at ground, mid and canopy levels and in water bodies. Additionally, some 100 bird species of high conservation value are housed in Winged Sanctuary where conservation stories illustrate how Bird Paradise delivers impact in saving threatened species locally and regionally.



A Peek Into Paradise

The much-anticipated Bird Paradise soft opened on 8 May 2023 amidst great interest from all quarters. To celebrate the momentous event, local residents were offered A Peek Into Paradise special admission price of \$38, from 8 to 26 May 2023.

Both locals and tourists voted with their feet for Bird Paradise. By the time it officially opened in November, some 580,000 guests had already visited the park.



8 May 2023, 9am – a historical moment as Bird Paradise opened its gate to the first guests, warmly received by Mandai management team and staff.



Bird Paradise offers immersive experiences which make learning authentic and fun.



Ocean Network Express Penguin Cove, home to four penguin species, is one of the world's largest cold salt-water penguin habitats.



Photography in Paradise which included workshops, a competition and exhibition was a collaboration with Sony to celebrate Bird Paradise's opening with photography enthusiasts.



The Grand Opening

Bird Paradise marked its grand opening on 15 November 2023, six months after it soft opened. The milestone event was officiated by Singapore's then Deputy Prime Minister and now Prime Minister Mr Lawrence Wong. He was joined by 1,000 guests including residents from the Northwest and Southeast Community Development Councils.

To commemorate Bird Paradise's opening, we collaborated with Singapore Post in the launch of a limited-edition stamp set featuring some of our most threatened birds and iconic aviaries.

Partnering Sony Singapore, we curated a series of photography workshops which culminated in a photo competition and exhibition to showcase the symphony of colours in Bird Paradise.

Paradise Passports were issued to guests, inviting them to discover the stories of Bird Paradise on a self-guided trail.



Guest of Honour, Mr Lawrence Wong, Singapore's then Deputy Prime Minister and now Prime Minister receiving a postcard from a cockatoo during the official opening of Bird Paradise.



Bird Paradise commemorative stamp set

Take Off To Paradise

Marketing efforts went full swing with the launch campaign *Take Off To Paradise* to announce 'paradise is here' to the world.

In a bold move, we orchestrated a guerrilla activation by intercepting commuters transiting at Dhoby Ghaut MRT station and offering them an exclusive opportunity to embark on an expense-paid journey to Bird Paradise. The activation video posted on Instagram garnered 760,000 views and 18,000 engagements. The initiative eventually went on to win Gold for Excellence in Urban Guerrilla Marketing, Marketing Excellence Awards 2024.

To raise awareness in key international markets, we flew in six mega key opinion leaders (KOLs) for a two-day tour at Bird Paradise. The engagement culminated in a social contest which offered a free air ticket to Singapore and Bird Paradise as the grand prize. Through this KOL activation, we created 250 pieces of content, recording a staggering reach of 9.2 million across six markets. The activation eventually won the 2024 Singapore Tourism Award for Outstanding Marketing Idea.



Guerrilla marketing activation - a young family successfully intercepted by our team at Dhoby Ghaut MRT station to enjoy an expense-paid journey to Bird Paradise.



Extensive media coverage and high impact marketing strategy propelled Bird Paradise to Google's Top 5 Trending Places in Singapore 2023.

Mandai Wildlife West – A Community Space for All

Mandai Wildlife West is a new community space that serves as the gateway to Bird Paradise and the upcoming Rainforest Wild Asia. It came online on 5 May 2023, just days ahead of Bird Paradise’s soft opening. This ungated public node is part of the Mandai Rejuvenation Project to transform Mandai Wildlife Reserve into a wildlife destination where guests can learn, play, dine, shop, stay and recharge.



Wildlife-friendly spaces abound, offering food and shelter for native animals that visit Mandai Wildlife West.

A spectacular 10m-tall waterfall sculpted after Indonesia’s Madakaripura waterfall greets guests at the entrance. Rainwater collected from a harvesting system is channelled to the waterfall. A winding path behind the water curtain leads to an upper deck with two large pangolin-themed playgrounds. Children can also engage in interactive play on Dry Forest Stream Trail which features boats, archways, a rope bridge and root-like structures inspired by mangrove forests. Aquatic plants thrive in water features which frogs, dragonflies and other life forms frequent. Completing the landscape are various fig species

and other native plants that form green corridors to provide food and shelter for insects, birds, squirrels and other local wildlife.

At the heart of Mandai Wildlife West are dining and retail options featuring sustainable menus and merchandise. Home-grown zero-waste grocery and lifestyle store Unpackt makes a green statement with its presence. Diners can indulge in flavours by A&W, Collin’s, Han’s Union, Pavilion Banana Leaf, Coffee House by Old Chang Kee, Starbucks and Birds of Paradise.



Pangolin Adventure



Pangolin Hideout



Dry Forest Stream Trail

Bird Paradise and Mandai Wildlife West

Win BCA Universal Design Excellence Award

Bird Paradise and Mandai Wildlife West clinched the BCA Universal Design Excellence Award 2023. Inclusion is one of the three key principles that guide the development of the Mandai rejuvenation project. Bird Paradise and Mandai Wildlife West boost inclusive facilities that cater to persons with disabilities,

nursing mothers, as well as seniors and their caregivers. By ensuring barrier-free accessibility, guests can embark on a seamless journey to enjoy the wonders of nature. Other notable user-friendly features at Bird Paradise include spacious pathways, nursing rooms, adult changing beds and air-conditioned hubs offering cool respites between aviaries.





Le Le's flight home was sponsored by Singapore Airlines (SIA).

Goodbye Dear Le Le



Our Very Important Panda (VIP) Le Le is the first giant panda cub born in Singapore to Kai Kai and Jia Jia. His arrival on 14 August 2021 coincided with our nation's 56th birthday. A beacon of hope shining through the doom and gloom of the global pandemic, Le Le won the hearts of Singaporeans and worldwide netizens with his spirited personality. He fuelled a surge of interest in panda conservation and strengthened Sino-Singapore relations.

Singapore is deeply honoured to cooperate with China on giant panda conservation research, the seventh country to do so and the first in Southeast Asia. As part of the bilateral agreement, all giant pandas bred outside China are due to return to their homeland

when they reach two years of age to support the Chinese conservation breeding efforts.

Le Le's preparations for his big trip home spanned several months. He underwent thorough health assessments, vaccinations, and anti-parasite treatment to fulfil export requirements. Our VIP was crate-conditioned to become comfortable entering, eating and resting inside his travel crate. In addition, he was successfully conditioned for injections and other medical procedures necessary to keep him in the pink of health.

Shortly after Le Le's two-rific birthday celebrations on 14 August 2023, he went into a month-long pre-export quarantine. Our VIP took his isolation like a champ. For a smooth handover, a keeper from China was attached to his care team during the last five days to familiarise himself with Le Le's daily routine and ensure that he was trip ready.



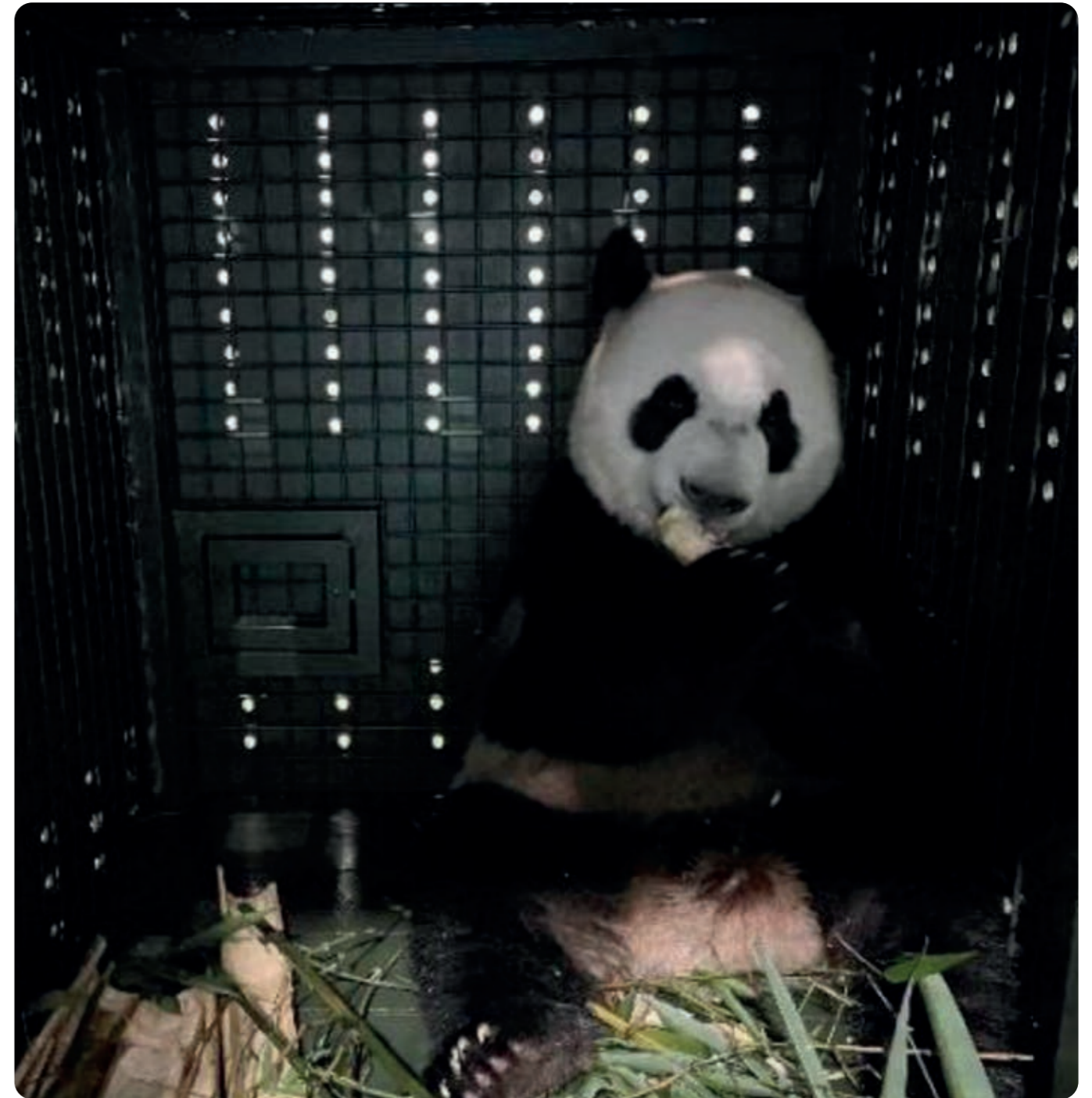
Le Le's legion of fans visiting him for a final time before his big trip to China.

Le Le departed from Singapore on 16 January 2024. He was loaded onto a chartered SIA freighter. Accompanying him to China were our keeper and veterinarian, as well as his Chinese keeper. The aircraft was pre-cooled an hour prior to departure to around 15°C for our VIP's optimal wellbeing. Le Le was relaxed throughout his flight.

He arrived safely in Chengdu some 4.5 hours later whereupon he entered a second round of mandatory quarantine. Le Le made his first public appearance at Dujiangyan Panda Base in Sichuan on 7 March 2024. He has settled down in his new home. We wish Le Le well and hope that he will soon contribute to the conservation of his species through the giant panda breeding programme in China.



Le Le's crate being loaded onto a chartered SIA freighter, pre-cooled to around 15°C for optimal comfort.



Le Le feeling calm in his custom-built travel crate



Caring For Our Planet



We are committed to the vision of a biodiverse planet and sustainable future.

As the custodian of some of the most endangered animals on Earth, we are dedicated to sustaining their population under human care and to conservation breeding for selected species with a long-term plan for reintroduction in the wild.

Protecting biodiversity within Mandai Wildlife Reserve, in Singapore and beyond our shores is our key priority, but we can only achieve this through partnerships with like-minded individuals and organisations, and support from all who believe in our cause.

As we add new attractions and features to transform Mandai Wildlife Reserve into an integrated wildlife destination, we are keenly aware that we have to double down on efforts to decarbonise our operations and minimise our impact on the environment.

Conservation education that inspires positive action is at the heart of our staff engagements and guest interactions. When the Mandai Rejuvenation Project is completed in the near future, 10 million guests are expected to visit Mandai Wildlife Reserve each year, presenting us with tremendous opportunities to engage and inspire collective actions for a healthy planet.



Rejuvenation of Mandai Wildlife Reserve in Steady Progress

Following the grand opening of Bird Paradise which captured headlines locally and globally, construction of the remaining features of the Mandai Rejuvenation Project continues to progress well. The much-anticipated Mandai Rainforest Resort operated by Banyan Tree is set to open its doors in the first half of 2025. We will also be launching our fifth wildlife park, Rainforest Wild Asia soon. When the rejuvenation of Mandai Wildlife Reserve is completed, this unique wildlife and nature precinct will be home to five zoological parks with distinctive nature experiences, two indoor attractions, green public spaces and accommodation options. Guests from all walks of life will have access to a wide range of sustainable and ethical wildlife experiences at this conservation-focused destination.

Ongoing development at the Mandai Rainforest Resort.



The Boardwalk at the Mandai Wildlife Reserve is a free access green space that hugs the edge of Upper Seletar Reservoir. With its entrance next to River Wonders, this scenic 3.3 km route enables guests to immerse in nature and greenery outside the ticketed parks.





Construction progress is well underway for Rainforest Wild Asia.



One of the key features in the upcoming Rainforest Wild Asia, Singapore's fifth wildlife park.



One of many transition planning workshops between the development and operating teams of Rainforest Wild Asia in preparation for its opening.

Preparations for Rainforest Wild Asia

The new Rainforest Wild Asia will be the region's first zoological park to integrate adventure elements into its design. Guests will embark on a multi-layered Southeast Asian rainforest experience at this 12.6-ha park. Walkways link the vibrant canopy above to the forest floor below, descending further into subterranean caverns inspired by the Mulu Caves in Sarawak.

With construction well underway, transition management has commenced, preparing for the operationalisation of this new park. A series of transition planning workshops began in July 2022 to converge the plans of the development and operating teams. Together, we mapped out over 300 processes, identifying more than 900 preparatory tasks. In addition, a risk-based safety review of Rainforest Wild Asia's adventure elements was carried out with the appointed service provider.



Animals Under Our Care



The Avian and Veterinary teams saw a hectic year with the translocation of the remaining 1,800 birds from Jurong Bird Park to Bird Paradise. Crate training to facilitate transfers and other preparatory work kept the Avian team extremely busy. Health checks for all the birds were conducted pre translocation followed by close monitoring and surveillance checks post translocation to ensure that they adapt well to their new home. With all the wildlife parks now operating in Mandai Wildlife Reserve, the Animal Care team has greater opportunities to synergise and tap on shared resources to elevate our animal welfare standards further.

FY23/24 Highlights

- Expanded our managed species programmes to **193** species, intensifying our contribution to sustaining the population of threatened animals under human care.
- Welcomed **1,126** births and hatchings from **151** species – the highest number in the past decade.
- Attended to **7,476** clinical cases, a **56%** leap from the last FY largely due to numerous health checks to help the birds adapt to their new home at Bird Paradise, surveillance on disease patterns and trends in a new environment and implementing the preventive healthcare measures arising from our findings.
- Inducted **255** senior animals into the Geriatric Animal Care Plan to provide customised care for each individual.

The Animals Under Our Care

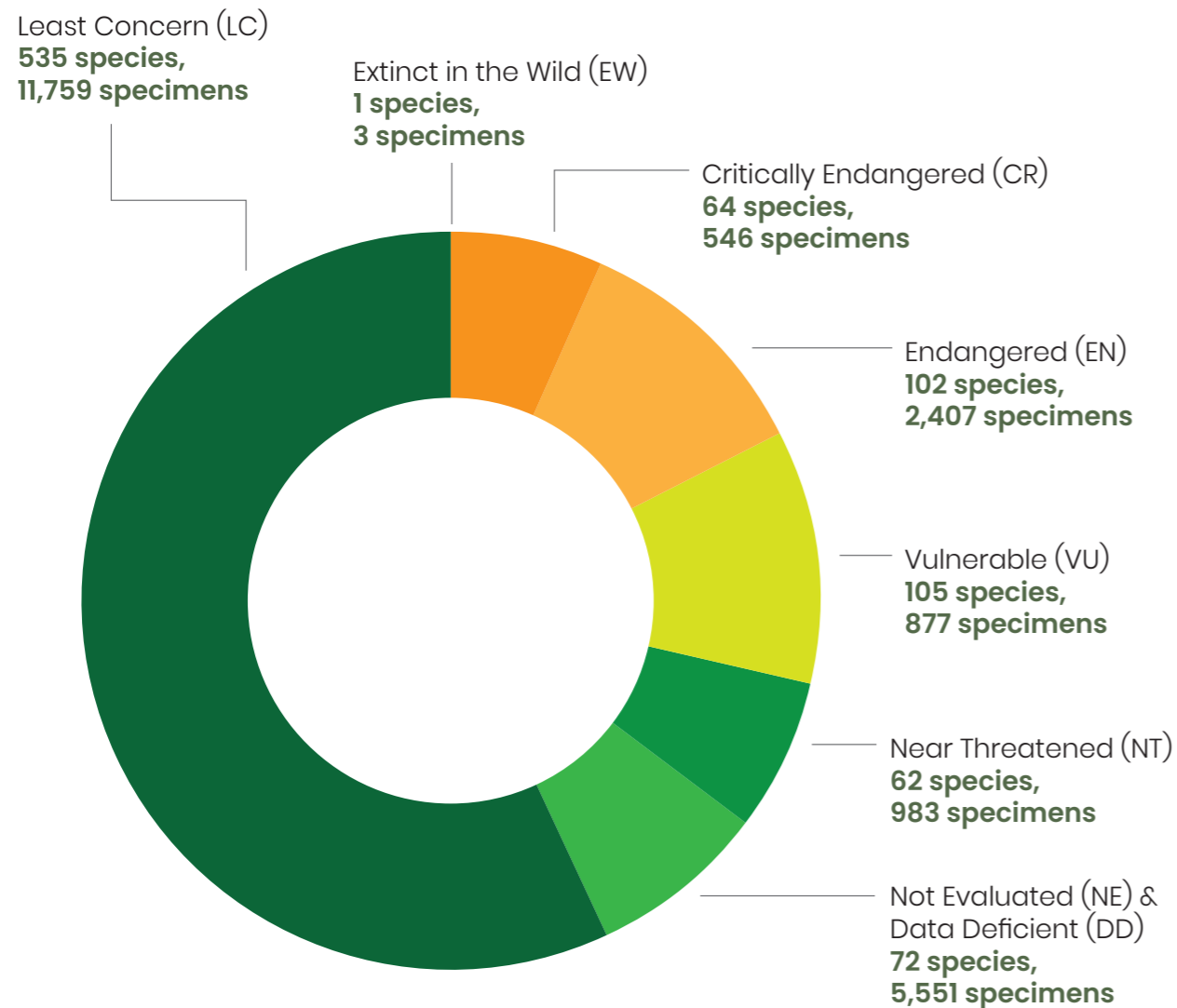
In the year under review, we cared for over 22,000 animals representing 941 species, 29% of which are threatened in the wild.

As of 31 March 2024:

Total Number of Animals

22,126 specimens
941 species (29% are threatened)

* Threatened Species include animals that are extinct in the wild, critically endangered, endangered, and vulnerable, according to the IUCN Red List of Threatened Species



Saving Species At A Global Level

To sustain our animal population, we collaborate with other zoos through managed species programmes which involve inter-zoo transfers of genetically compatible animals for breeding. Such collaborative efforts avoid inbreeding and enhance the genetic diversity of threatened species under human care. In the FY, we added 34 managed species programmes to our list, bringing the total to 193 species. The fossa and the other animals featured here were among the new managed species (see full list in Annex). For each designated threatened species, the coordinator makes recommendations for inter-zoo transfers to achieve the best conservation and welfare outcomes.

More than sustaining the population of threatened species under human care, we extend our impact to saving species in the wild. Adopting IUCN's One Plan Approach, we care for and breed threatened species while working with field conservationists to achieve the long-term goal of repopulating the species in the wild.



Fossa



Black-and-white Ruffed Lemur



Aardvark



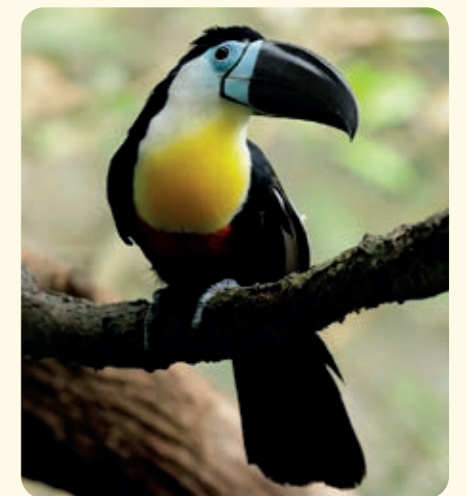
Golden Parakeet



Meerkat



Dalmatian Pelican



Channel-billed Toucan

A New Home @ Bird Paradise

The great migration of birds from Jurong Bird Park to Bird Paradise began on 4 January 2023. By end April 2023, 95% of the entire population of 3,800 birds was safely translocated, in time for Bird Paradise's soft opening on 8 May 2023. In the months that followed, the Philippine eagles, Asian songbirds and hornbills moved into their home in Winged Sanctuary while the penguins settled in well in Ocean Network Express Penguin Cove.

The Avian team and volunteers monitored the birds closely and made modifications to social groupings, husbandry and aviaries, where needed, to ensure the highest welfare standards of our feathered residents in their new environment. The veterinary team also increased the frequency of health checks and ramped up surveillance checks to chart new disease patterns and trends that informed preventive measures.



Penguins were kept in a corral to gradually acclimatise them to their home, which is one of the world's largest cold salt-water penguin habitats.



Highlighted here are some of the species, translocated to Bird Paradise in the FY.



Andean Cock-of-the-rock



Santa Ground Dove



Northern Cassowary



Wreathed Hornbill (male)



Wreathed Hornbill (female)



Rhinoceros Hornbill



Southern Ground-Hornbill



Rufous Hornbill



Wrinkled Hornbill

With over 20 hornbill species, Bird Paradise holds the world's largest genetic reserve of hornbills under human care.

Notable Newcomers

During the FY, we organised 50 inter-zoo transfers with 37 imports and 13 exports involving 676 animals. Some new arrivals will be housed in the upcoming Rainforest Wild Asia while others were acquired to fulfil the population plan of our existing parks. Most of the transfers were made under recommendation of the species coordinators of managed species for the best conservation and welfare outcomes. Highlighted here are the significant transfers.

North Island Brown Kiwi

Hailing from San Diego Zoo, USA, a male North Island brown kiwi arrived at Night Safari where his nocturnal behaviour is best showcased. Settling in well, he awaits the arrival of his prospective mate from Walsrode, Germany. The pairing of this threatened species was recommended by the Brown Kiwi Species Survival Plan coordinator. We are keeping our fingers crossed for baby kiwis soon.



Diana's Monkey Troop

In May 2023, a family of endangered Diana's monkeys comprising four males and one female arrived from Ostrava Zoo, Czech Republic. The troop did not take long to acclimatise to their new surroundings. They will be housed with other animals in a mixed-species exhibit in the upcoming Rainforest Wild Africa.



Kagu

We welcomed a pair of endangered kagu from Yokohama Zoo in Japan, in time for the grand opening of Bird Paradise. These birds are part of the managed species programme that coordinates the species' conservation breeding globally. With only 58 individuals under the care of 12 zoos worldwide, the pair is a very precious addition to our bird population.



Northern Carmine Bee-eaters

In March 2024, Bird Paradise welcomed 20 northern carmine bee-eaters from Disney Animal Kingdom, USA. Their vibrant colours and spectacular feeding behaviour of catching insects mid-flight make them a great addition to Rwanda Nyungwe Forest Heart of Africa. We are hopeful that they will breed soon in the nest boxes hidden in the artificial cliff.



Malayan Crestless Fireback

This critically endangered bird is amongst the most threatened species in Asia. Its population has plummeted due to habitat loss and hunting. In the FY, five males and four females joined our single female pheasant in Bird Paradise. With five breeding pairs, we are the proud custodian of the largest population of the species amongst member zoos of EAZA (European Association of Zoos and Aquaria). Bird Paradise is set to play a core role in developing an insurance population for this bird.



Caribbean Manatees Sent Off to China



Our Caribbean manatees are part of a managed species programme. On 13 July 2023, we transferred three male Caribbean manatees to Hainan Ocean Paradise (HOP) after a year-long pre-export quarantine. In preparation for the transfer, two HOP representatives visited River Wonders to learn the intricacies of manatee husbandry and management. Our staff also travelled to HOP to assess their facilities to ensure readiness in receiving our manatees. We worked with Animal and Veterinary Service (AVS) to review China's veterinary conditions. Post transfer, one manatee had issues adapting to his new home and we sent our veterinary team over to help. The manatee responded well to treatment and regained his appetite almost immediately.



1 Manatees in their pre-export quarantine site.
2 & 3 A manatee being lifted onto the transport crate.

Philippine Eagle Geo Went Home



It was a sad day on 7 September 2023 when our male Philippine eagle *Geothermice*, known fondly as Geo, succumbed to a respiratory infection despite the valiant efforts of our veterinary and avian teams to save him. Geo is survived by his partner Sambisig, or "Sam", for short. The eagles are on a breeding loan from our conservation partner Philippine Eagle Foundation. Geo's carcass was taxidermised and repatriated to the Philippines. He will be displayed at the National Museum of the Philippines, where even in death, Geo will continue to spread the conservation message for his species which is critically endangered.



Animal Enrichment

Behavioural enrichment involves creating environments and activities that elicit natural behaviours to enhance the physical and mental well-being of animals. Enrichment activities, which aim to improve animal welfare, can include novel food items or varied food presentations, cognitive challenges, physical habitats that mirror natural ones, sensory stimulation and social opportunities.

Guided by the Behavioural Management Framework (BMF), our Animal Care team has successfully progressed from device-centric enrichments to a species-appropriate behaviour-centric approach that requires the team to predetermine specific behaviours every enrichment seeks to elicit, and to evaluate the outcomes.



An automated stable grazer that doubles up as an enrichment device. It dispenses food at peak stereotypic timings to engage the elephants and reduce incidence of stereotypic behaviour.

Automated Feeders Reduce Stereotypic Behaviour in Elephants

Stereotypic behaviour is seen as redundant behaviour that does not benefit the animal. For elephants under human care, common stereotypic behaviours include head bobbing, swaying and pacing, which happen when the animals are under stimulated or when they are anticipating a scheduled event such as feeding.

Our elephant care team conducted a systematic study of the incidence and duration of stereotypic behaviours displayed by individual elephants at Singapore Zoo and Night Safari. Upon analysis of daily 24-hour CCTV camera footage, the team was able to pinpoint the timing trend of stereotypic behaviours.

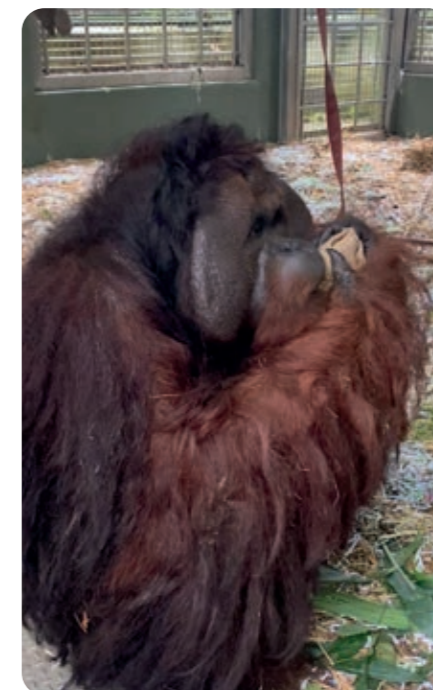
To counter stereotypy, the keepers have started experimenting with automated feeders that also serve as enrichment devices. Three types of automated feeders have been deployed – stable grazer to dispense hay, feedpod to scatter herbivore pellets, and automated winch to lower down suspended natural browse, hay or pellets at set timings. These feeding devices are placed at different parts of the exhibit and yard, encouraging the elephants to explore their environment. The keepers programme the feeders to automatically dispense food to coincide with peak stereotypic timings. These feeding interventions have reduced the frequency and extent of stereotypy, and improved the welfare of our elephants.

Enrichment For Great Apes

Orangutans and chimpanzees are highly intelligent and our keepers for these great apes are constantly challenged to curate novel environmental and food enrichments to meet the behavioural needs of their charges.

To encourage explorative foraging behaviour in our orangutans and chimpanzees when they are in back-of-house areas, the care team hid gunny sack food puzzles stuffed with nuts or other food rewards in the yard. The apes went on 'scavenger hunts' to uncover the hidden treasures. Some orangutans were observed using twigs to probe for the yummy rewards, demonstrating the high cognitive function of tool-using. To extend enrichment duration, chimpanzees were given fruits frozen in ice blocks. They had to explore ways to thaw the ice blocks, including hitting them against a platform.

- Novel items such as shredded paper, upcycled life buoys and firehoses are great 'toys' to elicit explorative behaviour in orangutans.



Bundles of Joy

During the FY, we enjoyed a baby boom, celebrating 1,126 births and hatchings from 151 species. This is the highest number of babies that our parks have collectively produced in the past decade. Amongst the bundles of joy, 38 are threatened species of high conservation value. When they come of age, some individuals will join our global managed species programmes to participate in inter-zoo exchanges for breeding. For species managed under the IUCN One Plan Approach, the goal is to eventually release the precious offspring in their native habitats for repopulation.



Negros Bleeding-heart

With a wild population of fewer than 250 mature individuals, the Negros bleeding-heart needs all the help it can get. In September 2021, together with Talarak Foundation, we established the first conservation breeding programme for this critically endangered ground dove outside its native Philippines. In the FY, 13 chicks were hatched at Bird Paradise, bringing the total to 27 birds under our care. Managed under the One Plan Approach, we target to send the progenies back to the Philippines to restore the wild population within the next year.

Vietnam Pheasant

At Bird Paradise, we were elated when three pairs of the critically endangered Vietnam pheasant produced eight chicks between them. Our breeding success is of conservation significance as this species is likely extinct in the wild with no sightings since 2000. Fortunately, about 1,000 Vietnam pheasants are held in zoos worldwide, presenting a glimmer of hope for the survival of the species. As part of the IUCN One Plan Approach coordinated by our conservation arm Mandai Nature, we are arranging to repatriate the offspring back to Vietnam in the coming year to repopulate their home habitat.



Meller's Duck

A pair of endangered Meller's ducks took advantage of a well landscaped reedy stream in Rwanda Nyungwe Forest Heart of Africa, Bird Paradise to construct a platform nest hidden deep in vegetation. Before long, 10 ducklings were sighted, marking our first success in breeding this species.

American Flamingo

To encourage the flamingoes to breed, their keepers provided mud and clay for the birds to build their mound nests. The effort paid off with the hatching of two flaminglets in over 25 years since the days of Jurong Bird Park. These little ones were naturally nourished by their parents' crop milk.



West Indian Manatee

At River Wonders, a female calf was born to Eva, the largest female manatee at the Amazon Flooded Forest. Measuring 1.3 m at birth, the calf had to be bottle fed by our keepers as she displayed no suckling behaviour. She has developed well and transited to an adult diet of fresh vegetables and high-fibre biscuits.



Rote Snake-necked Turtle

Our first Rote snake-necked turtle baby said hello to the world on 23 July 2023. It weighed just 3g and was slightly bigger than a 50-cent coin when hatched. This freshwater turtle has not been sighted in its native range of Rote Island in Indonesia for the last 10 years. We are working with conservation partners to repopulate this species in the wild (see page 71 for details).



Green and Black Poison Dart Frog

The year saw unprecedented success in breeding several amphibian species, including the purebred green and black poison dart frog with four babies produced.



De Brazza's Monkey

We welcomed the birth of two male De Brazza's monkeys at Primate Kingdom. This primate is usually found near swamps, hence its other name 'swamp monkey'.

Conditioning for Husbandry and Stress-Free Medical Procedures

We strive to provide optimal care for our animals. To achieve this, best husbandry practices, regular health checks, disease surveillance, and appropriate veterinary care are crucial. However, carrying out these activities through physical restraint or the use of anaesthesia inevitably induces stress in the animals as well as their keepers. Conditioning the animals to elicit the desired behaviour for husbandry and medical procedures is a much-preferred approach. Conditioning is achieved through positive reinforcements, in the form of food rewards.

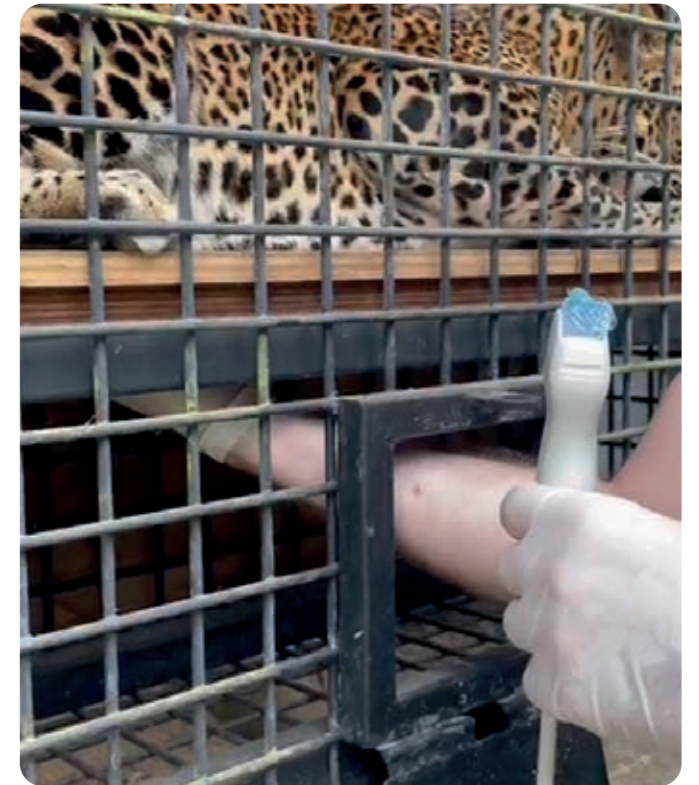


In the FY, we conditioned eight out of our nine Asiatic lions to receive their annual vaccinations without sedation. This was achieved through many steps including conditioning them to the presence of the vets, basic commands, desensitizing them to touch and alcohol swabs, and finally getting them to stay in position for the injection.

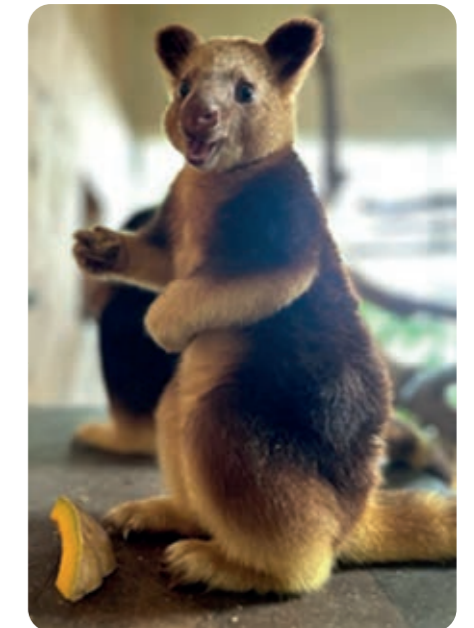
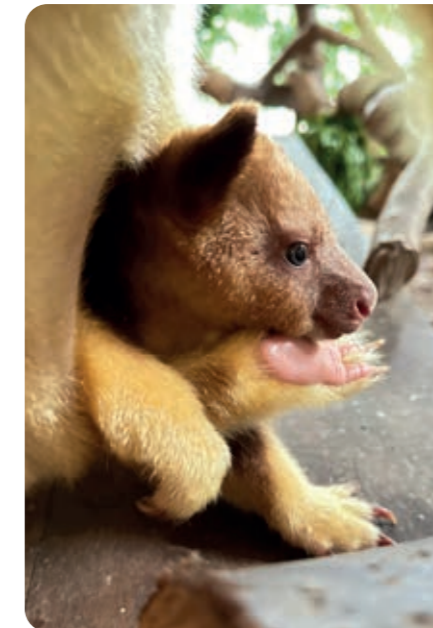
A king penguin being conditioned to voluntarily enter a crate for a food reward, in preparation for the move from Jurong Bird Park to Bird Paradise.



The Animal Care team employs movable targets linked to food rewards to get their charges to move from one place to another for weight taking or transfers.



Our 12-year old female Sri Lankan leopard has been conditioned to present herself for ultrasound scans to monitor her health and reproductive status.



Nupela, a female Goodfellow's tree kangaroo has been conditioned to participate voluntarily in pouch inspections. During a routine check in April 2023, the keepers discovered a joey, the size of a jellybean, suckling inside her pouch. They monitored the joey's growth closely with regular pouch checks.

By the end of the FY, the joey, named Susu, had outgrown his mother's pouch and become a crowd charmer.

Veterinary Highlights

Our Veterinary team provides a comprehensive suite of healthcare services including health surveillance, preventive medicine, surgical procedures, geriatric care, innovative medical solutions, and pathology. The team is responsible for diagnosing and treating diseases and injuries sustained by our animals, as well as rescued wildlife admitted to our facilities. In the FY, our vets handled 7,476 clinical cases, a 56% increase compared to the previous year. This was largely due to numerous health checks to help our birds adapt to their new home at Bird Paradise, surveillance checks on disease patterns and trends in a new environment, and implementing further preventive healthcare measures arising from our surveillance findings.



Primate Healthcare

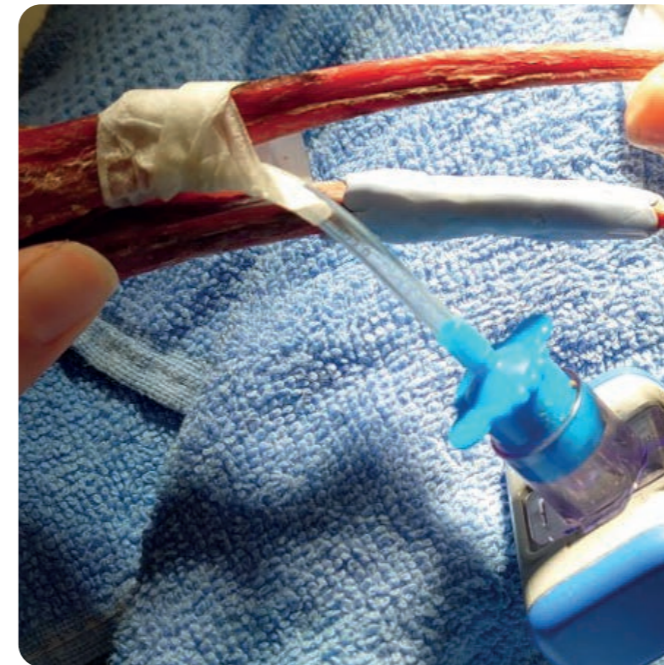
In the FY, we stepped up disease surveillance for our leaf-eating monkeys and successfully reduced the number of parasitic infections from *Entamoeba histolytica*. The team also implemented monthly veterinary checks for very young primates to get a good assessment of their health status and treat any medical condition promptly. We have fine-tuned our protocols and approach to dysbiosis, a commonly-seen gastrointestinal inflammation. In addition, purpose-built structures were added in the primate holding facilities to facilitate health procedures on conditioned individuals, negating the need for anaesthesia or physical restraint.

Philippine Eagle Succumbs to Lung Infection

The care team for Geothermica (Geo), our 19-year-old male Philippine eagle, noticed that he was not eating well. A check revealed that his white-blood cell counts and globulin levels were elevated, suggesting an infection. Despite antibiotics and antifungal treatment, his appetite continued to be poor. Further diagnostics confirmed a severe infection in his lungs. We administered emergency and intensive treatments, including a blood transfusion. Throughout, our vets and care team remained in close contact with the Philippine Eagle Foundation on Geo's condition and treatment plan. We did all we could to save Geo but he tragically passed away on 7 September 2023. Post-mortem examination showed a severe *Aspergillus* infection in his respiratory system. Geo was taxidermised and returned to the National Museum of the Philippines (see page 49).

Beak Fracture Management

The Veterinary team had to get creative when treating various avian species, many with uniquely shaped beaks. In one instance, an injured bald ibis was fitted with an external prosthesis moulded using acrylic and a syringe. With the new beak, it could eat again. It soon gained weight and was discharged. For follow-up care, our keepers medically conditioned these birds to cooperate with our vets in the large aviaries.



Dental Care for Better Welfare

To develop in-house capabilities in veterinary dentistry, we brought in a specialist consultant from South Africa to work on the dental issues of several animals while guiding our vets to participate in the procedures. He also helped the vets hone their skills in diagnosing and treating various dental diseases. This is an ongoing effort to provide our animals with the best possible dental care, which translates to better welfare.



Swim Bladder Infection in Amur Sturgeon

An Amur sturgeon presented with an abnormal swim pattern suggestive of a swim bladder infection. The fish was restrained for a health

assessment. Blood tests revealed inflammation. The sturgeon was transferred to a holding tank for antibiotic treatment and made a full recovery.



Customised Care for Senior Animals

As animals age, their healthcare requirements change accordingly. In response to this, the Geriatric Animal Care Plan was started in 2017, with closer attention paid to our senior animals that have attained 75% of their expected lifespan under human care. We inducted 255 animals into the plan in the FY. Under this proactive management approach, a dedicated vet is assigned to each geriatric animal and a customised care plan is put together with its caregivers. The plan addresses health, husbandry and welfare matters. It covers tailored diets, bespoke exercise regimes, husbandry adaptations, medical assessments and treatments, and quality of life assessments.



Treating Hoof Lesions in Giraffes

Hoof issues are a common problem for giraffes under human care. The hooves of our giraffes Adhil and Balaji were slightly overgrown and had developed cracks. Hoof oil was applied to improve their condition and antiseptic spray was used to prevent infections. Concurrently, both giraffes are undergoing training to present their feet for regular hoof examination and trimming.



Preventive Healthcare

Preventive healthcare is the cornerstone of effective veterinary science, with the goal of maintaining health rather than merely responding to diseases. Our proactive approach includes regular health checks, vaccinations, parasite control and more to safeguard against common illnesses and infections. It also involves routine screenings for early detection of potential health issues, and sound biosecurity practices.



Preventing Hepatic Lipidosis in Reptiles

One key focus during the FY was the screening of hepatic lipidosis (fatty liver disease) in our at-risk groups of reptiles, including the giant tortoises, freshwater turtles and lizards. We conducted extensive reviews of our reptiles' health status via physical examinations, blood work and diagnostic imaging. Diets and environments were assessed, and modifications made accordingly. With increased vigilance, we aim to prevent the occurrence of hepatic lipidosis.

Establishing Reference Range of Reptile Serum Proteins

To improve the treatment of reptiles, we have expanded our range of tests to boost diagnostic capacity. One useful test is protein electrophoresis. It can indicate health conditions such as inflammation and organ dysfunction. We are working to establish reference ranges for various proteins in freshwater turtles such as the critically endangered Rote snake-necked turtle and the Burmese roofed turtle. The data gathered will be made available to benefit the veterinary community.

Animal Quarantine

The Mandai Animal Quarantine, which started operations in December 2022, received 508 transferred animals during the FY, including 379 birds, 76 mammals and 53 herptiles. In particular, the large number of birds requiring quarantine put the facility's operating capacity to a rigorous

test. Despite the challenge, a discharge rate of 99% was achieved for the entire shipment. The experience provided valuable insights into manpower and other resource deployment, and highlighted areas for improvement.



On 11 August 2023, Mandai signed an MOU with NParks' Animal and Veterinary Service at the Mandai Animal Quarantine building where both parties agreed to collaborate on animal biosecurity, disease surveillance, wildlife management, species recovery, nature conservation and education.

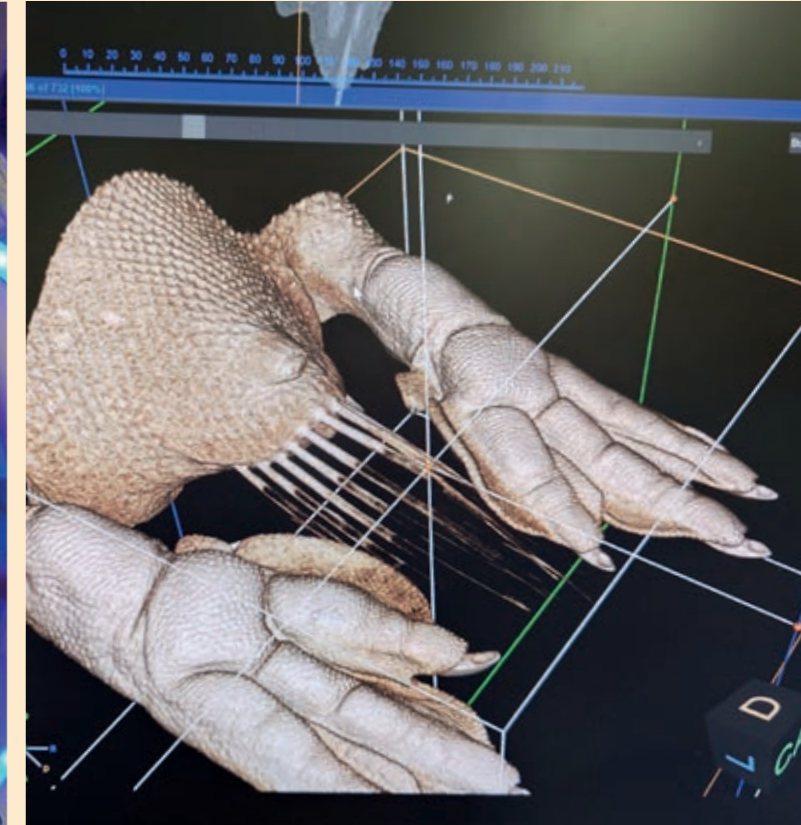
New Surveillance Programmes at Bird Paradise

Arising from the translocation from Jurong to Bird Paradise, our birds not only had to adapt to the new environment, but also the vastly different social groupings in expansive mixed species habitats. Responding to this change, the Veterinary team redesigned surveillance programmes to gather baseline data to facilitate the early detection of health issues. On top of monitoring breeding activities and disease trends, regular screening is performed to uncover avian flu, parasitic infestations, as well as bacterial and fungal infections.



Advanced Medical Technologies in Animal Healthcare

Embracing innovation, the Veterinary team leverages on cutting-edge medical technologies to enhance diagnostic and treatment capability, enabled to a large extent by our new well-equipped Avian Hospital.



Advanced Imaging Enhances Diagnostic Treatment Capabilities

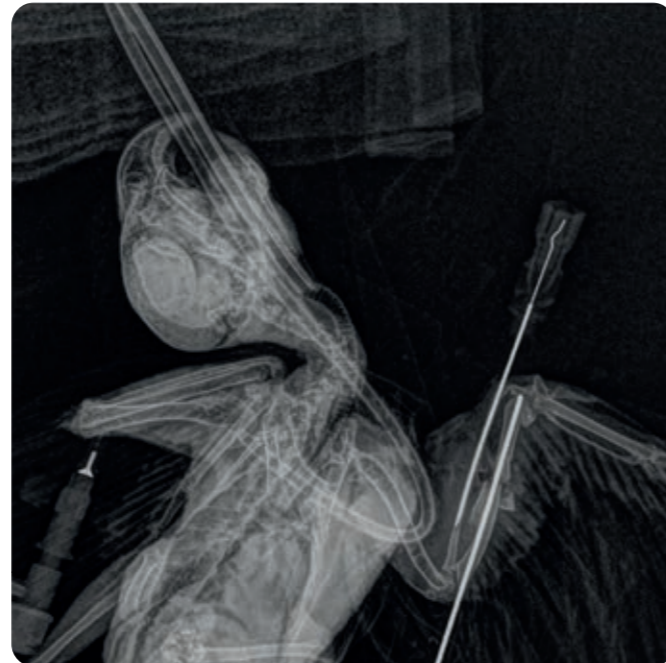
Since May 2023, we have been able to perform CT (computed tomography) scans in the Avian Hospital on avian and non-avian patients from across our parks. Such advanced imaging provides visualisation of complex anatomy and significantly enhances our diagnostic capabilities, aiding in functional assessments and surgical planning. In the FY, over 200 animals benefitted from these CT scans. We use both Cone Beam CT which provides three-dimensional X-ray imaging, as well as conventional CT. The two machines complement each other, handling different body parts, organs and patient sizes. They empower us with the ability to detect and treat diseases much earlier than before.



Complex Orthopaedic Surgeries in Birds

A 24-year old sulphur-crested cockatoo suffered a complex wing fracture as revealed by a CT scan. It underwent a complicated surgical repair, aided by intra-operation radiographs to confirm the correct positioning of pins. Three weeks later, the external fixator and pins were removed. Soon after, it regained full function of its wings.

Traumatic injuries can be challenging to treat for small-sized patients. When one of our sun conures (parakeets) fractured its forearm, the veterinarians had to use a combination of CT scan and X-ray to guide the placement of pins, successfully mending its wing so that it could fly again.

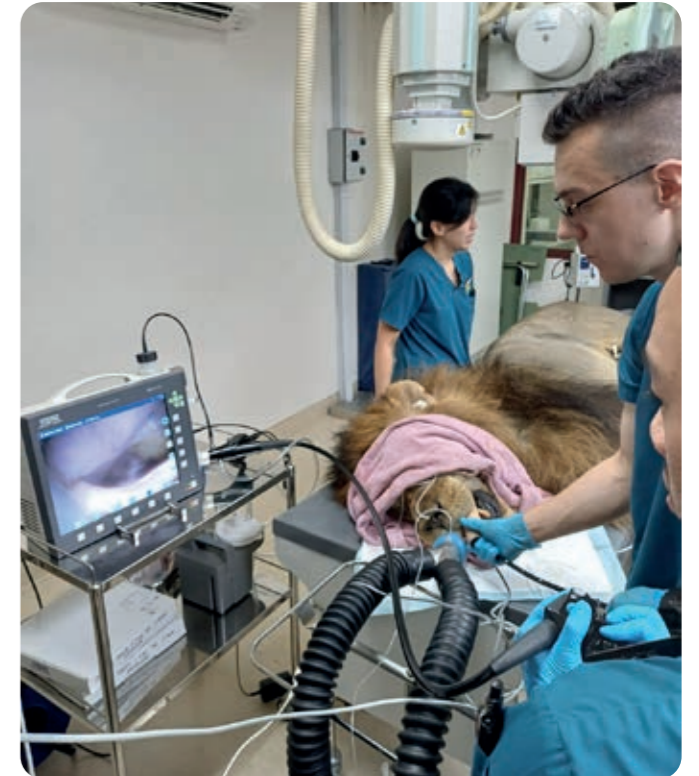


Endoscopy & Laparoscopy in Wildlife Medicine

Endoscopy and laparoscopy are minimally invasive procedures using natural orifices and keyholes respectively to yield a great amount of clinical information. For laparoscopy, the resulting wound is tiny and heals quickly. There is minimal pain and the animal can be discharged within the day.

Using laparoscopic surgery, our vets biopsied a growth in the colon of our 20-year old spotted hyena, Temba, and could determine that the growth was unlikely to be causing the clinical signs observed. Temba was placed on a month-long antibiotic treatment immediately to stem secondary bacterial infection. Thankfully, he responded well to it.

Timba, an African lion, had a two-week history of vomiting and inappetence. Biopsies carried out with a three-metre long endoscope confirmed *Helicobacter* bacterial infection of the stomach. He was treated with targeted antibiotics and has since recovered.





Playing A Leading Role In Conserving Biodiversity



Strongly aligned to the landmark UN Biodiversity Agreement in 2022 that guides global action on nature, we have been playing a leading role in conserving biodiversity with a multitude of impactful initiatives. Our goals are to avert extinction of threatened species, stem habitat loss, restore ecosystems, and support local communities.

Working closely with zoos around the world through managed species programmes and other animal transfer initiatives, we help to sustain healthy populations of threatened species under human care. Apart from caring for our animals, we provide medical care and rehabilitative support for over 1,000 rescued animals each year as part of our contribution to protecting native wildlife.

Through our conservation arm, Mandai Nature, we provide funding and in-kind support for field conservation projects at scale locally and regionally.

In FY 23/24, we

- Bred **151** species, of which 38 are threatened and contributed to sustaining the population of these species under human care at a global level.
- Provided medical care and rehabilitative support for **1,140** rescued animals as part of our efforts to protect native wildlife.
- Supported over **40** field conservation projects in Singapore and Southeast Asia through our conservation arm, Mandai Nature.
- Supported the second repatriation of **33** critically endangered Rote snake-necked turtles to Kupang, Indonesia, in preparation for eventual reintroduction to their native habitat on Rote Island.

Sustaining Zoological Populations & Conservation Education

Zoos and aquariums are important gateways to wildlife encounters. With over 700 million visitors annually, zoological institutions around the world hold the power to inspire and motivate people towards actions for a healthy planet. To connect people to wildlife, zoos need to sustain healthy animal populations, which we do through 193 managed species programmes (see details in the Annex).

Leveraging on the strong growth in guest attendance post pandemic, we ramped up conservation communication and engagement efforts with a plethora of offerings through various channels (see Spreading the Message for details). More importantly, we have adopted a studied approach to evaluating the impact of our messaging on inspiring positive action. The results will guide us in curating programmes and activities with relevant messages that resonate with diverse target groups.



Averting Extinction Through Mandai Nature

We doubled down on delivering conservation impact in Singapore and Southeast Asia by linking up research efforts and conservation breeding in our parks with direct support for field conservation work through our conservation arm, Mandai Nature. Our support is contributing to the protection of over 50 threatened species and 443,300 hectares of critical landscape in Southeast Asia, while benefiting local communities living in and around these conservation projects.



Female Raffles' banded langur and her baby – a delightful sight in the forests of Singapore

Hope For The Raffles' Banded Langur

The Raffles' banded langur in Singapore was on the brink of extinction. Research in the 1990s suggested that the species would become extinct within 40 years due to habitat loss and fragmentation. After almost two decades of concerted conservation efforts, which we have been playing a pivotal role in, positive results have emerged. A recent study projected that the langur's population will grow from the current

75 to about 240 individuals by 2071. The Raffles Banded Langur Working Group, managed and funded by Mandai Nature, has been instrumental in improving population outcomes over the years. In particular, the Working Group spearheaded a national species action plan for the langur with measures such as field monitoring, enhancement of ecological connectivity, and public engagement through citizen science.

Relaunch of Singapore Conservation Impact Grant

Mandai Nature has relaunched its flagship local grant programme, the Singapore Conservation Impact Grant, formerly known as Wildlife Reserves Singapore Conservation Fund. The grant supports Singapore-based projects that prioritise contribution to a biodiverse, ecologically

connected and biophilic City in Nature. More than \$125,000 in grants have been awarded to three local researchers for conservation projects centred around songbirds, sharks and rays as well as horseshoe crabs.



Photo: Keita Sin



Photo: Ng Yi Long

Local conservation projects on songbirds and horseshoe crabs are two of the three projects supported by Mandai Nature's grant programme Singapore Conservation Impact Grant.

World Wildlife Day Regional Youth Symposium

Mandai Nature was a key supporter of the World Wildlife Day Regional Youth Symposium that took place in February 2024. Organised by NParks' Youth Stewards for Nature, this two-day symposium attracted over 300 young conservationists from across Southeast Asia. They engaged in panel sessions on topics such as tackling the illegal wildlife trade, and digital innovation in wildlife conservation.

As part of the programme line-up, we hosted workshops to share how Mandai Nature and Mandai Wildlife Group work together for the best conservation outcomes for highly threatened species.



Photo: NParks

Panel discussion on technology and innovation at the World Wildlife Day Regional Youth Symposium 2024.

Launch of SCeNE Coalition

The Southeast Asia Climate and Nature-based Solutions (SCeNE) Coalition was officially launched at Ecosperity Week 2023. The coalition brings together eight leading global environment and conservation non-profit organisations, including Mandai Nature. SCeNE's goal is to deliver on several workstreams to drive implementation and investment in high-quality triple-benefit nature-based solutions (NbS) in Southeast Asia. In December 2023, the coalition launched a web-based tool at COP28 in Dubai. Designed for frontline organisations and investors, the tool aims to simplify access to information, assistance, and funding needed for local organisations to participate in NbS projects.



Photo: SCeNE Coalition

Launch of the online nature-based solutions tool at COP28.

New Roadmap on Urgent Conservation of Freshwater Fish

In June 2023, the IUCN SSC Asian Species Action Partnership (ASAP), Mandai Nature and SHOAL jointly released a report 'The Strategic Framework to Accelerate Urgent Conservation Action for ASAP Freshwater Fishes in Southeast Asia'. This roadmap aims to see all Critically Endangered ASAP freshwater fish receive active conservation

efforts by 2030. With support from Mandai Nature, both ASAP and SHOAL also launched the 'SHOAL-ASAP Freshwater Fish Conservation Grant'. The grant has since helped four ASAP partners ramp up conservation actions for five ASAP freshwater fishes in Indonesia and the Philippines.



Urgent conservation action is needed in Southeast Asia as this region is home to 90% of the world's critically endangered freshwater fish including the Mekong giant catfish.



Photo: Wentian Shi

Betta cracens, a peat swamp forest freshwater fish species from Indonesia, has a high potential for onsite conservation.

One Plan Approach To Species Conservation

We are steadfast adherents of IUCN's One Plan Approach (OPA) to species conservation - an integrated strategy that unites conservation breeding and scientific research conducted in zoos with field conservation efforts to protect threatened species in the wild. We have selected multiple threatened Southeast Asian species for conservation action under OPA with the all-important goal of eventual repopulation of these species in their native habitats.



Second Repatriation of 33 Rote Snake-necked Turtles to Indonesia

The critically endangered Rote snake-necked turtle is one of the species managed under OPA and the conservation outcome has been most encouraging.

Together with Mandai Nature, we supported the second repatriation of 33 Rote snake-necked turtles from Singapore Zoo to Kupang in their native land, Indonesia. This multi-party initiative involved collaboration with the Ministry of Environment and Forestry of the Republic of Indonesia (MOEF), Balai Besar KSDA Nusa Tenggara Timur (BBKSDA NTT) and Wildlife Conservation Society - Indonesia Program (WCS-IP).

Following the first-ever repatriation in 2021, breeding efforts of the Rote snake-necked turtle at a specially-built facility in Kupang, constructed with Mandai Nature's support, have proven successful. This is a significant milestone in the conservation of the species. Our staff travelled to Indonesia to visit key sites for the possible release of the turtles and shared expertise with the teams from BBKSDA and WCS-IP.



Mandai staff scanning the microchip of a Rote snake-necked turtle before repatriation. Each turtle is fitted with a microchip to identify individuals.



Photo: BBKSDA NTT.

Upon the turtles' safe arrival at Kupang in Indonesia, staff from Balai Besar KSDA Nusa Tenggara Timur (BBKSDA NTT), with help from Wildlife Conservation Society, conducted health checks on the turtles.

Providing Care & Rehabilitating Rescued Wildlife

Aside from tending to all aspects of healthcare for the animals in our four parks, the Veterinary team also treats rescued wildlife brought in from across Singapore. During the FY, 1,140 rescued animals came through our doors to receive vital medical care and rehabilitative support. Some 60% of the rescues were assessed to be suitable for release into the wild after their treatments. All releases were carried out in collaboration with NParks. By extending our veterinary resources to rescued native wildlife, we contribute towards saving local biodiversity.



Successful Rehabilitation of A Leopard Cat

A rescued leopard cat arrived at our facility in a dehydrated and emaciated state. We nursed it back to health and provided rehabilitative support to facilitate its eventual release by NParks into a suitable habitat. The leopard cat is the last wild cat in Singapore. With fewer than 50 leopard cats left in mainland Singapore and on offshore islands Pulau Tekong and Pulau Ubin, the successful rehabilitation of this individual is greatly significant.



Developing Sunda Pangolin Expertise

In the last decade, nearly 300 rescued Sunda pangolins were admitted to our facilities, presenting a unique opportunity for the Veterinary team to treat and study this critically endangered species. Apart from general health assessments and medical care, the team performed sperm cryopreservation to maintain a biobank of semen samples for future assisted reproduction. We have also developed a method for intubation, which enables a pangolin's airway to be secured during anaesthesia. This novel method is a feat in itself due to the pangolin's unique anatomy.

For clinically healthy individuals, our team has described their ultrasonography and radiography findings in a scientific journal, serving as an important reference for veterinarians worldwide. In the FY, we had our first successful case of treating a moribund pangolin after placing it in intensive care. The knowledge and expertise gained will benefit the larger wildlife community working on saving pangolins both under human care and in the wild.



Environmental Sustainability



Biodiversity loss is inextricably linked to human-induced climate change and unsustainable practices. As a purpose-led organisation dedicated to protecting wildlife, we appreciate the urgency to rapidly optimise and decarbonise our operations. To this end, we are committed to Net-Zero GHG (greenhouse gas) emissions across our value chain by FY2050 – a target verified by the Science Based Targets initiative (SBTi). Apart from sustainable operations, our environmental sustainability strategy is supported by two other pillars – biodiversity protection and sustainability advocacy.

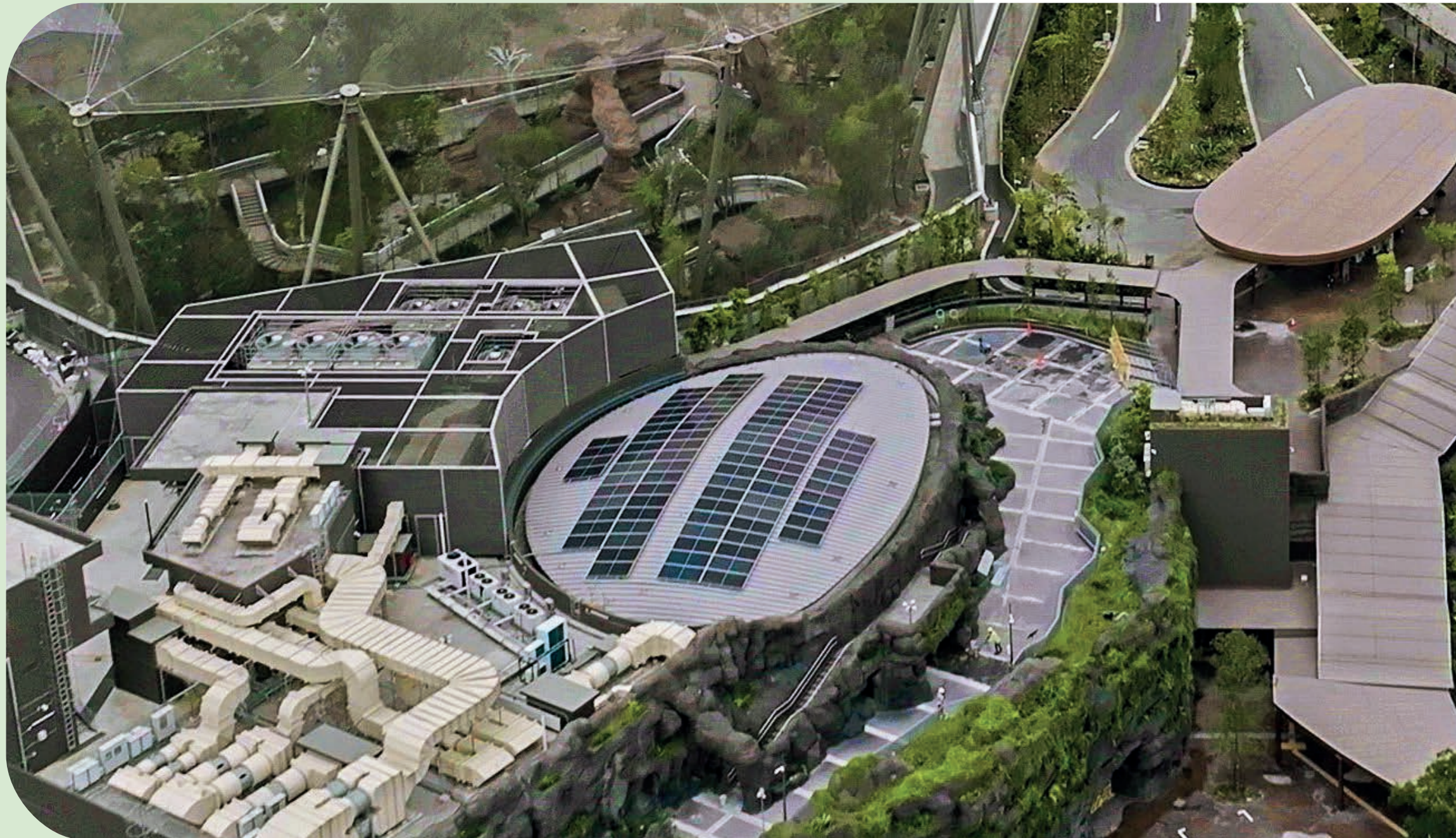
FY23/24 Highlights

- **Clinched Outstanding Achievement in Sustainability**
Singapore Tourism Board Awards 2023.
- Bagged NParks' **Landscape Excellence Assessment Framework (LEAF) Platinum certification** for Bird Paradise and Mandai Wildlife West.
- Received approval for our near and long term science-based emissions reduction targets with the **Science Based Targets initiative (SBTi)***.
- Achieved **81%** of energy consumption from renewable sources.
- Reduced our potable water intensity to **0.20m³/guest**, from 0.25m³/guest.
- Increased the recycling rate in our parks to **22%**, from 19%.
- Achieved a **25%** reduction in waste generated to **0.82kg/guest**, from 1.16kg/guest.

* Please refer to the inaugural **Mandai Sustainability Report** for details on our progress towards our near and long term science-based emission reduction targets, and other sustainability initiatives.

Sustainable Operations

We strive to deliver exceptional guest experiences and top-notch animal care while minimising our carbon footprint. Continuing on our sustainability journey, we advanced various initiatives to stay the course. As before, our commitment to resource stewardship, responsible procurement, and sustainable design yielded promising results, moving us closer to Net-Zero Green House Gas (CHG) emissions by FY2050.



We added 243 kWp of solar generation capacity in Mandai Wildlife West and Bird Paradise, equivalent to powering 61 four-room HDB flats for a year.

Resource Stewardship

We focus on three key areas to optimise resource stewardship:

- Adopting clean and renewable energy while enhancing energy efficiency in our operations.
- Conserving and recycling water.
- Striving towards zero waste.

Clean & Renewable Energy

Target:
100% of energy use from renewable sources by 2030

For this FY, we added 243 kWp of solar generation capacity in Mandai Wildlife West and Bird Paradise, equivalent to powering 61 four-room HDB flats for a year. We also purchased and retired Renewable Energy Certificates (RECs) from solar facilities in Vietnam worth 29,500-megawatt hour. Together with on-site solar, 81% of Mandai's energy consumption came from renewable sources. In addition, we reduced non-renewable energy consumption by 16%.

Saving & Recycling Water

Target:
Reduce potable water usage by 25% (i.e. 0.21 m³/guest) from 2020 baseline by 2030

We continued to upgrade infrastructure and equipment, and monitor water leakage to enhance water efficiency. As a result, we successfully reduced our potable water intensity from 0.25 m³/guest to 0.20 m³/guest year-on-year. The newly constructed wastewater recycling plants are expected to commence operations in the third quarter of 2024. Recycled water from these plants will be for non-potable uses, and is projected to supply 21% of our water needs in the long term. This will reduce our reliance on fresh water sources and impact on the environment.

Towards Zero Waste

Interim Target:
Divert 60% of waste from incineration by 2030

We work closely with our suppliers to reduce packaging waste through take-back systems. We replaced single-use paper egg trays with reusable egg crates, diverting 750 kg of waste for the year. Year-on-year, our recycling rate has increased from 19% to 22%, while waste generation intensity has dropped from 0.75 kg/guest to 0.56 kg/guest.

We undertook a waste profiling and waste service journey mapping exercise to formulate more targeted measures to improve recycling rates and reduce waste generation. The study revealed that food waste, both pre and post consumer, forms a substantial percentage of our general waste. To tackle this, we are exploring the reduction of pre-consumer food waste through improved portion sizing. Additionally, we are working to increase the diversion of post-consumer food waste to food digesters.



We undertook a waste profiling and waste service journey mapping exercise to formulate more targeted measures to improve recycling rates and reduce waste generation.



Each month, our animals produce a whopping 60,000kg of dung, contributing to 18% of the total waste generated. We are exploring solutions to treat and valorise animal dung into higher-value products to raise our waste diversion rate.



Old Fire Hoses, New Toys



The Animal Care team has been repurposing and upcycling old items to create enrichment devices for the animals. Fire hoses donated by the Singapore Civil Defence Force are put to good use because of their robust nature. They are used as vines or weaved into hammocks for orangutans and other primates. Baskets made from fire hoses require our elephants to use their dexterous trunk to retrieve treats through the gaps. Similarly, old tyres are upcycled as 'toys' to keep our animals occupied.

Robust fire hoses donated by the Singapore Civil Defence Force are upcycled into hammocks for our orangutans and other primates.



Jati having an 'ele-fun' time retrieving treats from a basket made from old fire hoses.



From Water Filters to Elephant Sand Baths



Sand is used in water filters to remove contaminants. Periodically, the water filters in the life support systems at River Wonders have to be replaced. Instead of discarding the used sand, it is extracted, cleaned and repurposed to create sand mounds for our elephants. They enjoy playing, sleeping and taking sand baths on these mounds. This innovative upcycling not only reduces waste but saves the cost of purchasing new sand.

Our elephants enjoy frolicking in sand mounds created using upcycled sand.

Responsible Procurement

Our Green Procurement Policy, in place since 2019, incorporates sustainability criteria for over 20 product categories. We are on track to meet two key targets by 2025:

- 100% of the palm oil we use in our kitchens, and 100% of the products with palm oil derivatives we use or sell come from certified sustainable sources.
- all paper-based products are either FSC-certified or made from 100% recycled materials.

In the FY, all eggs used in our F&B outlets and in animal feed were sourced from local farms certified under Singapore's Good Agricultural Practices.



Eggs in reusable crates from a Singapore Good Agricultural Practice certified local farm.

Sustainable Retail Options

Embracing a sustainability-focused retail strategy not only guides us in the procurement of merchandise, but also presents opportunities for sustainability and conservation messaging to our guests. In the FY, 58% of the merchandise sold at our retail outlets were certified sustainable. To help guests identify these eco-friendly options, they are placed under our proprietary Wildlife Sanctuary design. In expanding our reach, we garnered licensing opportunities for Wildlife Sanctuary and brought the range to shops in Changi Airport and Design Orchard (2023). We also launched our new icon and tagline 'Choose Sustainable' to unify sustainability messaging across our product lines and parks.

Beyond sustainable merchandise, we work with our conservation partners such as Hornbill Research Foundation and MYCAT to offer guests retail options that support a cause. All the proceeds from Hornbill Research Foundation's merchandise will be directed toward its research efforts. By retailing these products, we help fund vital conservation work while educating our customers on the importance of wildlife research and protection.

Co-authored 'A Supplier's Guide to Sustainability'

As a steering committee member of the National Sustainable Procurement Roundtable (NSPR), we co-authored 'A Supplier's Guide to Sustainability' to help SMEs embark on their sustainability journeys with practical advice and resources. The guide was launched at the NSPR Forum 2024 to support national sustainability goals. Sharing the publication with our suppliers, we hope to better promote best practices towards decarbonisation of our value chain.

Sustainable Design

We adopt a low carbon and nature sensitive approach in the design of all new development and upgrading projects in our existing parks. Our commitment to sustainable landscape design has received recognition, with Bird Paradise and Mandai Wildlife West awarded NParks' Landscape Excellence Assessment Framework (LEAF) Platinum certification.



Our proprietary Wildlife Sanctuary design offers sustainable merchandise.



We work with Soft Toy Hospital to upcycle and rehome donated plush toys.

Protecting Wildlife in Our Backyard

Mandai Wildlife Reserve abuts the Central Catchment Nature Reserve, making it incredibly biodiverse. To protect native wildlife in and around our parks, we work closely with our conservation arm, Mandai Nature, to enhance habitats and ecological connectivity. We have identified eight focal species based on their population status and conservation needs (see page 143 for the list). To date, we have restored 0.8 hectares of degraded areas, with a target of rehabilitating 2.7 hectares by 2030.



We observed the lesser mouse deer and gold-ringed cat snake during monthly wildlife surveys.

Environmental Management

Throughout the FY, we conducted weekly site inspections and monthly audits of the four Mandai project construction sites to ensure effective implementation of the Mandai Rejuvenation Project's Environmental Management and Monitoring Plan. Key measures carried out included noise reduction, erosion control, as well as tree and wildlife protection. These efforts have minimised impact to the environment and safeguarded biodiversity.

Biodiversity Management

Native wildlife is thriving in and around Mandai Wildlife Reserve. Our fauna monitoring programme includes monthly wildlife surveys in the buffer forests, as well as bi-annual in-park wildlife surveys carried out by staff, volunteers, and members of the nature community to better understand and protect the biodiversity in our backyard. In the FY, we recorded 13 mammal species, 34 amphibian and reptile species as well as 86 bird species.

Translocating Bamboo Bats

Bamboo bats are listed as vulnerable in Singapore. Found within our grounds, they are one of our eight focal species that have been prioritised for conservation and management. When bamboo felling was carried out as part of our development works, our ecologists checked all felled bamboo for the presence of these bats. Health checks were conducted, and supportive veterinary care was given where necessary. The rescued bats were subsequently translocated.

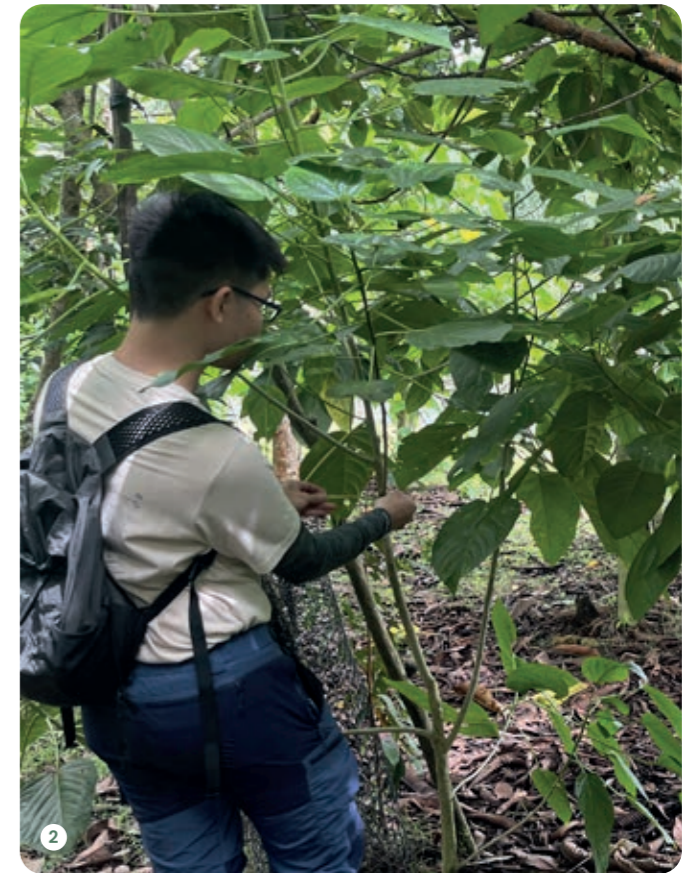


Mandai Wildlife Bridge

Mandai Wildlife Bridge was built over Mandai Lake Road in 2019 to link two forest patches, enabling animals to cross safely between them. In December 2023, our surveys found an average canopy coverage of over 85% on the bridge, reflecting substantial vegetation growth across the site. The near-continuous canopy provides a conducive environment for forest-dependent animals to move between habitats. Various native plant species have established themselves

naturally with some 120 saplings observed. They contribute to flora diversity and a more complex vegetation structure.

Camera trap recordings captured the first sighting of a lesser mousedeer in April 2022. During the FY, this species was detected 51 times, a record high for us. In July 2023, we celebrated our first record of the critically endangered Sunda pangolin moving between habitats via our bridge.



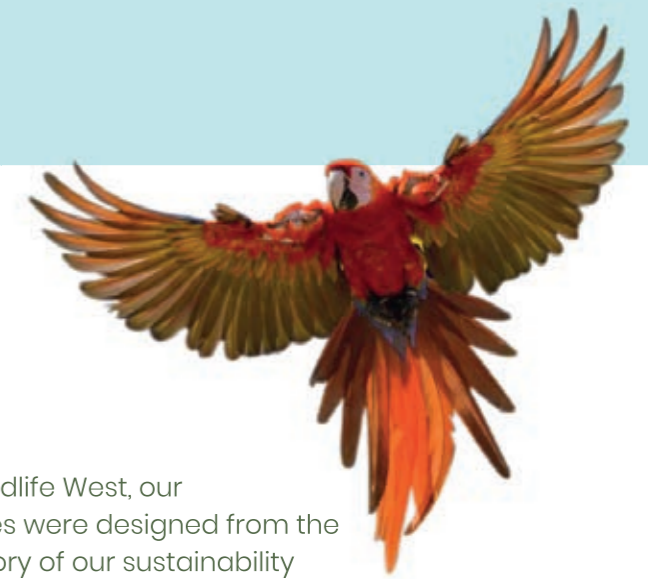
1. Mandai Wildlife Bridge has an average canopy coverage of over 85%, reflecting substantial vegetation growth.
2. We observed the natural recruitment of various native plant species on the bridge, with some 120 of these saplings exceeding 1 metre in height.
3. In July 2023, our camera traps picked up the first record of the critically endangered Sunda pangolin.

Sustainability Advocacy

Please refer to following chapter 'Spreading the Message' to find out more.



Spreading The Message



With the opening of Bird Paradise and Mandai Wildlife West, our messaging has gone up a notch as these facilities were designed from the outset with green operations at their core. The story of our sustainability journey comes alive through a showcase of the green features during guided tours and workshops. More than just generating awareness, we reimagined our programming to inspire people to take positive action for wildlife and to live sustainably. We have also adopted a strategic approach to expand our reach to youths by providing authentic learning experiences to support their future-ready aspirations. By collaborating with partners and with the support of our sponsors and volunteers, we were able to reach a record number of people through a plethora of in-park and virtual programmes.

FY23/24 Highlights

- Reached out to a record **333,000** school visitors, park guests and members of the public with conservation and sustainability messaging.
- Hosted **29,000** school visitors at Bird Paradise and launched a slew of new education programmes, including school retreats and overnight camps at Ocean Network Express Penguin Cove.
- Hosted the practical round of **Singapore Junior Biology Olympiad 2024**, in collaboration with The Singapore Institute of Biology.
- Achieved a social media reach of **202** million and engagement of three million in the form of likes, shares and comments.
- Cultivated a pool of **409** dedicated volunteers who contributed **15,700** hours towards guest engagement, animal care, and research data collection.

Inspiring Behavioural Change and Positive Actions

Inspiring behavioural change is at the heart of all our campaigns and programming. Guided by Mandai's Conservation and Sustainability Pathway To Change Framework, we adopt a studied approach to identifying and removing barriers to behavioural change so as to facilitate positive action for wildlife and the planet. For us to be change agents, we firmly believe in starting from within. We gird our workforce with the knowledge and drive to walk the talk in safeguarding wildlife and adopting sustainable practices.



Recycle Right Campaign

To generate awareness on recycling right and encourage staff to embrace recycling as a daily habit, we rolled out an internal Recycle Right campaign. In order to better understand staff's attitude towards recycling, we gathered baseline data via a survey as well as organised dumpster diving sessions to analyse trash composition in our garbage bins. Guided by the findings, we held several roadshows with curated activities to engage staff, prompting them to recycle right. There were also virtual quizzes and polls to drive home the message.

As a further nudge, we streamlined trash disposal at central bin points to get staff to be more mindful in sorting their trash into recycling or general waste bins. This campaign raised staff recycling rate from 14% to 19% and reduced contamination in recycling bins.



Our internal Recycle Right campaign raised staff recycling rate from 14% to 19% and reduced contamination in recycling bins.



We organised dumpster diving sessions to analyse trash composition in our garbage bins.

Bring Your Own Initiative

Findings from our dumpster diving sessions revealed that takeaway lunch boxes and BioPak disposables made up a large percentage of waste. To counter this, we rolled out a three-month long Bring Your Own (BYO) Campaign coinciding with the introduction of charges for takeaway disposables. Post-campaign dumpster dives found an 85% drop in number of BioPak disposables thrown away, but no significant change in number of lunch boxes discarded. We will continue to cultivate the BYO habit in staff to achieve long-term waste reduction in this area.



Our internal Bring Your Own (BYO) campaign coincided with the introduction of takeaway disposable charges to cultivate the BYO habit in staff.

Fighting Deforestation Campaign

Fighting Deforestation was a multi-year campaign launched in 2022 to create a platform for sustained conversations in deforestation issues. The third and final instalment of the campaign was rolled out in March 2024 to rally our guests to 'Choose Sustainable', emphasising the impact of consumer choices on the environment, wildlife and people. Learning stations at the Zoo exposed guests to rainforest animals and sustainable daily products such as snacks bearing the RSPO logo. Upon completion of

the station activities, guests were treated to Owa coffee, a wildlife and forest-friendly shade grown coffee, the cultivation of which is supported by Mandai Nature. The campaign engaged 15,600 guests with 78% indicating their intention to choose forest-friendly products. Noteworthy, the number of participants who strongly agreed with the statement "I will choose to buy a more expensive product if I know that it helps to reduce deforestation" increased by 9% post campaign.



RSPO 1106250



Guests were encouraged to 'Choose Sustainable' daily products that can be identified by various icons including the RSPO logo.



Our third Fighting Deforestation campaign engaged 15,600 guests.



Upon completion of station activities, guests were treated to Owa coffee, a wildlife and forest-friendly shade grown coffee, the cultivation of which is supported by our conservation arm, Mandai Nature.

Partnerships



Above: We engaged then Deputy Prime Minister and now Prime Minister Mr Lawrence Wong (on the extreme right) and other VIPs at our outreach booth focusing on the protection of native wildlife.

Go Green SG

Go Green SG (GGSG) is an annual sustainability initiative led by the Ministry of Sustainability and the Environment (MSE). We supported the green movement through these activities:

- An outreach booth on 'Protecting Native Wildlife' during the launch event of GGSG on 30 June 2023.
- A spoken tour 'Building Wildlife Friendly Spaces' to highlight our efforts in enhancing ecological connectivity to protect native wildlife in and around Mandai Wildlife Reserve.
- Soft toy restoration workshops to give old plushies a new lease of life.



Participants learnt ways to recycle old plushies, giving them a new lease of life.



1, 2 & 3: A tour of Mandai Wildlife West showcasing sustainable features and wildlife-friendly spaces.



Every Singaporean A Naturalist Symposium

We co-hosted the Every Singaporean A Naturalist (ESN) Symposium with Nature Society Singapore at Bird Paradise on 2 November 2023, reaching out to 156 students from 21 schools. ESN is a citizen science programme funded by Mandai Nature since 2018. The programme supports students in monitoring the urban wildlife in and around their school compounds and documenting their sightings on ESN iNaturalist platform. Additionally, it encourages participants to embark on community projects to generate awareness and inspire people to protect local biodiversity. The symposium provided an opportunity for the students to present their projects and allowed us to recognise the efforts of these students in wildlife conservation. We also shared our conservation work and sustainable best practices to inspire collective efforts for a healthier planet.



1, 2 & 3: Students presenting their community project during the ESN Symposium held at Bird Paradise.

Celebrating Zoo's 50th Birthday In Partnership with Preschoolers

As part of the Singapore Zoo's 50th anniversary celebrations, we partnered preschools in Singapore to shine a spotlight on the orangutan, a critically endangered rainforest species. Twenty-three preschools participated in the initiative. They organised learning journeys to the Zoo and student-led activities including the creation of orangutan art pieces

and fund-raising efforts by some of the preschools to adopt Khansa, the orangutan.

Made from recycled materials, the art pieces were exhibited at the Singapore Zoo to raise awareness of the plight of rainforest animals. We were heartened by the efforts of the little ones, and grateful to the preschools and parents for their support.



A selection of orangutan art pieces created by preschoolers from recycled materials. They were exhibited at the Singapore Zoo to raise awareness of the plight of rainforest animals.

Application-based Learning

Application-based learning focuses on the practical application of knowledge and skills. Transcending classroom learning, this approach emphasises on real-world scenarios and hands-on experiences, in which our programme designs are grounded.



Singapore Junior Biology Olympiad

Collaborating with the Singapore Institute of Biology for the first time, we hosted the practical round of the Singapore Junior Biology Olympiad at the 9th Singapore Zoo for 35 students representing seven secondary schools. To hone the students' critical thinking skills, we challenged them to apply biology knowledge in tackling application-based questions on animal care, sustaining genetically healthy zoo populations, exhibit design and veterinary science.

To authenticate the learning experience further, we conducted a sharing session highlighting how we, as the species coordinator for the Malayan sun bear, rely on the principle of genetics to play matchmaker in recommending the transfer of genetically compatible individuals amongst zoos for breeding. This science-based approach is the cornerstone of sustaining a healthy sun bear population in zoos to ensure the species' future survival under human care.



We challenged the students to apply biology knowledge in tackling application-based questions on animal care, sustaining genetically healthy zoo populations, exhibit design and veterinary science.

Design Thinking and Applied Learning Programme

The Applied Learning Programme (ALP) initiated by the Ministry of Education requires that schools seek industry partnership to provide authentic learning experiences and mentorship. We collaborated with Maris Stella High School (Primary) as an industry partner to co-create an experiential learning journey that applies Design Thinking in designing animal exhibits. Working in teams, the students studied the design of our exhibits and observed how the animals interacted with them. After being guided through the various

stages of Design Thinking, they were challenged to ideate for innovative and sustainable exhibit designs. Using recycled materials, they created prototypes of animal exhibits for feedback and enhancement. The students found the learning experience enriching as it challenged them to be creative and collaborative while the teachers appreciated its place-based and authentic learning value. Encouraged by the positive response, we proceeded to offer this programme to the wider school community.



1 & 2: We collaborated with Maris Stella High School (Primary) as an industry partner to co-create an experiential learning journey that applies Design Thinking in designing animal exhibits.



Engagement With Institutes of Higher Learning

We actively pursue strategic collaborations with Institutes of Higher Learning (IHLs) to offer tertiary students nature-based and sustainability-infused learning experiences. We also work with IHLs including Singapore Management University, Ngee Ann and Temasek Polytechnics as industry partners to mentor students in delivering problem-led projects in an authentic setting. These engagements provide insights into our sustainable best practices and the eco-tourism landscape, inspiring students to play their part in shaping a sustainable future. Through this holistic approach, we hope to pique the students' interest in exploring future career opportunities with Mandai.



Engagement With Educators and Curriculum Planners

To expand our network and enhance the value proposition of Mandai parks as Living Classrooms, we doubled down on engagements with educators and curriculum planners. The insights gained inform our programme curation for alignment and desired outcomes as well as strengthen our logistic support system to facilitate seamless school visits. Crucially, we have broadened our reach to secondary schools, an under-tapped segment.



Polytechnic Forum 2023: Sustainable Tourism at Mandai

The Polytechnic Forum is an annual event that provides a platform for polytechnic students to gain a deeper understanding of national issues through engagements with government and industry leaders. For 2023, the theme was Our Green SG, focusing on sustainability in Singapore. Some 140 students from five polytechnics descended on Bird Paradise on 18 and 19 September 2023 to learn about sustainable tourism through intentional planning and design. We exposed them to various initiatives such as providing wildlife-friendly spaces at Mandai Wildlife West, as well as the sustainable design and development of Bird Paradise. The students also benefitted from our sharing on the complexity of sustainable operations which include responsible procurement and resource stewardship.



Guided tour at Mandai Wildlife West.

Co-creating Curriculum with Schools

In the FY, we welcomed 2,500 school leaders, curriculum planners and educators to Bird Paradise and Singapore Zoo, showcasing our educational offerings, conservation projects and sustainable best practices. These engagements yielded very positive responses and led to on-going collaborations with the Ministry of Education and various schools in the co-creation of curriculum in design and technology, social studies, geography, English language and career guidance.



Ranger Buddies

The Ranger Buddies programme aims to develop every child into a future-ready global citizen and a responsible steward of our planet. Children embark on exciting missions with their Animal Buddies to learn about wildlife and take daily actions to protect them. Since its inception in October 2020, the programme has engaged over 64,000 children.



Ranger Buddies Virtual Shows

During the reporting period, we hosted three Ranger Buddies Virtual Shows:

- Soar Through Bird Paradise
- Ranger Buddies Explore KidzWorld
- Ranger Buddies Fight Deforestation

The shows continued to enjoy strong participation with some 20,000 preschoolers tuning in for each live screening. With songs, movements and compelling stories, they delivered good outcomes. Evaluations for the Ranger Buddies Fight Deforestation Virtual Show revealed that 90% of students polled agreed that rainforests were important to them and 93% indicated that they want to protect rainforests. Students shared that they would reuse paper, plant trees and look out for forest friendly logos on products they wish to purchase.

Launch of New Ranger Buddies Quest

Armed with smart binoculars, children go on Ranger Buddies Quests in Singapore Zoo and River Wonders. In completing the missions at the outposts and observation points, they discover the wonders of nature and the positive actions they can take to protect it.

Three new quests were launched at Singapore Zoo on 28 October 2023 to mark the opening of KidzWorld, while two were rolled out in River Wonders as part of its 10th anniversary celebrations.



Positive Action on Climate Change at HarbourFront Centre

From 5 to 18 June 2023, Ranger Buddies was at our partner mall HarbourFront Centre to encourage Positive Action on Climate Change. Children went on a mission to help Arlo the King Penguin save his friends who were stranded when their iceberg

broke off. At the same time, they learnt about climate change and the positive daily actions they can take to help. Our partner mall planted three Tembusu trees, one tree for every 500 missions completed.



Native Wildlife Adventure

In the FY, we launched Ranger Buddies Native Wildlife Adventure, an initiative supported by SG Eco Fund. The outreach programme included assembly talks and interactive booths to highlight Singapore's amazing native wildlife and encourage students to discover actions they can take to co-exist with and protect them.



Digital Engagements

Digital engagements across our social media channels have enabled us to showcase our work and connect a global audience to nature and wildlife. Our influence and outreach continued to grow at a clipping pace, boosted greatly by compelling content featuring unique Mandai stories.



Social Media

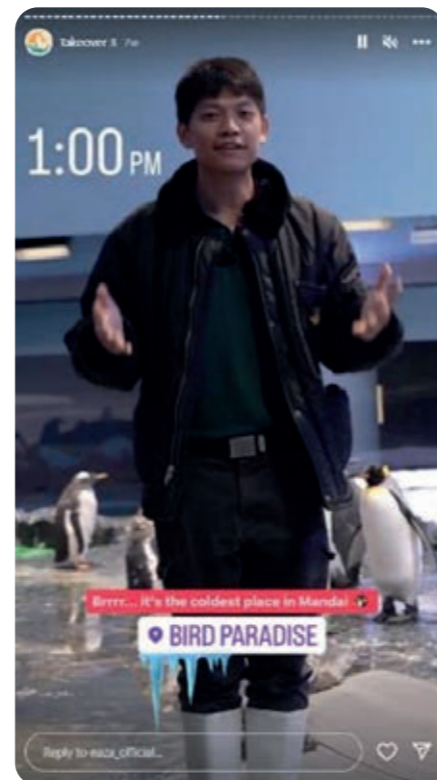
During the FY, we enjoyed strong digital engagement on our various social media platforms, expanding our influence to 1.19 million followers. In particular, our TikTok following doubled in growth, reaching 110,600 followers and achieving over one million likes. Over on YouTube, one of our posts featuring a throwback video of our pygmy hippo went viral, garnering an all-time high of over 6.6 million organic views. We enjoyed an overall reach of 202 million views and three million engagements in the form of likes, shares and comments, reflecting a year-on-year growth of 44% and 9% respectively.

EAZA Instagram Take Over

Mandai's social media outreach went up a notch on 5 October 2023. We had the privilege of taking over the content of EAZA's (European Association of Zoos and Aquaria) Wildlife Instagram (IG) channel for one day. With the theme 'A Day in Mandai', we posted 55 IG stories to showcase what goes on behind-the-scenes at our four parks. EAZA's IG followers gained insights into Mandai's animal care, conservation projects, sustainability initiatives, and wildlife rehabilitation efforts.

We also highlighted our role as EAZA Ex-Situ Programme (EEP) species coordinators – acting as matchmakers for several threatened species by making recommendations to pair up genetically compatible animals from different zoos for the best breeding outcomes.

We ran nine episodes of #AskMandaiAnything user-generated content posts, inviting netizens to send in questions which our subject matter experts answered with authenticity and a dash of humour.



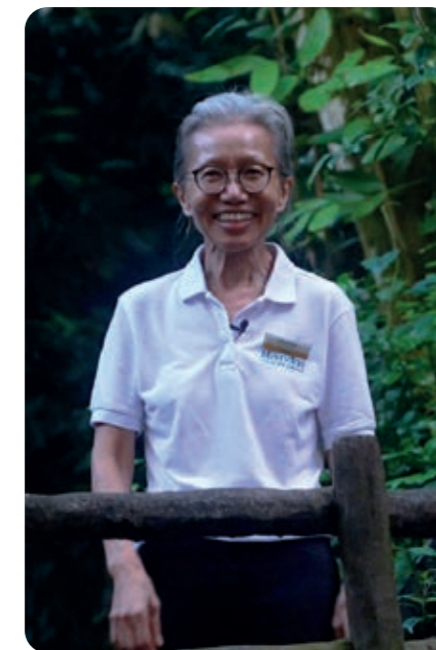
Our Volunteers

Our volunteer programme has been running strong for the last 26 years since its launch in 1997. We are immensely grateful to our 409 volunteers who contribute 15,700 hours in guest engagement and supporting animal care, veterinary health, nature conservation and surveys.



Celebrating 25 Years of Volunteer Service

Admirably committed to our cause, Ms Lok Wan Chee and Ms Juliana Heng have been volunteering with us since 1998. Wan Chee played a pivotal role in helping us establish the ranger station at the Night Safari. She has trained and mentored numerous volunteers, serving as their role model. Fellow docents describe her as 'generous with sharing information' and 'infectious in her love for the Night Safari'. Likewise, Juliana was in the pioneering batch of docents at the Night Safari. As a stalwart, she inspires fellow volunteers with her dedication and steadfastness despite work and family commitments.



Ms Lok Wan Chee



Ms Juliana Heng



Applicants for our Docent Programme have to undergo a stringent selection process that includes group activities to tease out attributes required to be a volunteer.

Volunteer Hosts @ Bird Paradise

In preparation for the opening of Bird Paradise, we collaborated with various Institutes of Higher Learning to curate a Volunteer Host Programme for students to gain social experience in guest interactions. We trained 54 students who contributed over 600 volunteer hours in the opening days of Bird Paradise, assisting guests in wayfinding and mitigating undesired bird-guest encounters. They found the experience invaluable – apart from the exposure to guest interactions, they gained insights into the operational challenges faced by a new attraction.



Students served as volunteer hosts by assisting in wayfinding and mitigating undesired bird-guest encounters.

Corporate Volunteer Programme

We hosted eight corporate volunteering sessions for the staff of our sponsors and adopters, namely GIC, Nikko Asset Management, Publicis Groupe, Electronics & Engineering Pte Ltd, as well as William Grant and Sons. In addition to generously funding the upkeep of our animals, these supporters involved their staff in the time-consuming task of constructing animal enrichment devices, relieving our Animal Care team of some of their workload. Our corporate volunteers also helped to enhance guest experiences by facilitating interactive activities around the parks. The volunteers felt that the engagements were very meaningful, contributing to animal care and conservation awareness.



Animal enrichment devices are made using upcycled materials.



Corporate volunteers weaving palm leaves into enrichment devices.



Building a People-focused Culture



From effecting the highest welfare standards in caring for our animals to facilitating meaningful wildlife experiences that inspire guests to protect nature, our staff deliver inestimable value in operationalising our parks.

As we gear up for the opening of Rainforest Wild and other new facilities in Mandai, we are working harder to strengthen our human capital to ensure the delivery of seamless wildlife experiences across all attractions within the precinct. Attracting talent and retaining staff through engagement and professional development become even more crucial with Mandai's repositioning as a wildlife destination where guests explore, learn, dine, stay and shop. The upcoming new attractions and experiences also offer opportunities for existing staff members to assume newly created roles for professional and personal growth.

FY23/24 Highlights

- Engaged over 1,000 staff to bring to life our newly minted purpose statement '**Building A World Where People and Wildlife Thrive Together**'.
- Initiated **Employee Experience Pulse Survey** using the newly launched Qualtrics platform.
- Accredited with the **Progressive Wage Mark** in recognition of the progressive wages that we and our contractors pay to staff covered under the respective sectoral or occupational progressive wage models.
- Hosted close to **31,000** beneficiaries from various Social Service Agencies to our parks.
- Trained **135** Life Sciences staff in the Zoological Information Management System (ZIMS) application and Care and Welfare (CAW) module to uplift animal care and welfare standards.
- Inked Memorandum of Intent with Info Media Development Authority to **accelerate digital transformation**.



Human Capital Management

Diversity, Equity & Inclusion

Fostering A Harmonious & Safe Workplace

As we progress on our diversity, equity, and inclusion journey, we remain focused on fostering a harmonious and safe environment within Mandai, to ensure that every employee feels valued and included. To this end, we conducted workshops on understanding workplace harassment to empower individuals to protect themselves and their colleagues. We are committed to rolling out this programme for all staff, boosting awareness and support throughout the organisation.

In addition, over 100 of our people managers underwent training to equip themselves with the skill to effectively assist victims.



Employee Engagement

Bringing Our Purpose Statement To Life

Last FY, we crystallised our reason for being in a purpose statement 'Building A World Where People and Wildlife Thrive Together'. The statement articulates our commitment to operating a purpose-driven organisation and serves to guide all staff in their daily actions and decision-making processes. We also took the opportunity to refresh our Vision and Values to define organisational success, aspiration and culture. This FY, we focused on communicating the changes to our staff as their engagement is of utmost importance in bringing to life the new Purpose and Vision statements, and the refreshed Values. A roadshow was organised to empower over 1,000 staff members to contribute to fulfilling our purpose and realising our vision, and to creating the desired culture through embracing Mandai's values. It also served to highlight to our staff that everyone has a role to play in helping to create a healthy planet for wildlife and people.



Taking the Pulse of Our Workforce

To monitor employee sentiments and track engagement, we initiated the Employee Experience Pulse Survey using the newly launched Qualtrics platform. The survey is conducted every six months to listen to the voices of our employees and gain insights that guide us in enhancing employee experience. In our first two pulse surveys, employee experience score rose from 73% to 76% while attrition rate fell from 19% to 12%, a testament to improved employee satisfaction and engagement.



Exposing Our Employees to Mandai-Supported Conservation Projects

To promote a deeper understanding of the regional conservation projects we support, we sponsored 15 employees from various departments for overseas trips to experience field conservation work with our conservation partners Free the Bears and Malaysian Conservation Alliance for Tigers (MYCAT). Such opportunities offer staff direct exposure to the challenges faced by conservationists and the intricacies of conserving threatened wildlife. They gained first-hand learning experience and went away feeling inspired to be active advocates for wildlife conservation.

Celebrating Long Service Awardees

Over 150 employees received their Long Service Award during our annual dinner and dance held at Marina Bay Sands on 21 February 2024. Of these awardees, 92 have served our organisation for 10 years or more. We extend our heartfelt gratitude to all long service awardees who have journeyed alongside us in the noble cause of protecting wildlife.

Two exceptional employees, G Permaloo s/o C Gomsamy and Mookkaiah Jodi, were honoured for serving 50 years in Mandai. Attaining this milestone speaks volumes of their steadfast dedication to caring for our animals.



G Permaloo s/o C Gomsamy

Permaloo is now a Keeper Mentor in the Primates Section. Over the years, he has imparted invaluable guidance to teammates and contributed to the care of golden monkeys and giant pandas on loan from China.



Mookkaiah Jodi

As Animal Care Manager with immense operational experience, Jodi has played a vital role in leading and motivating his team with his work ethic. He has made significant contributions to the design and build of noteworthy animal care facilities and exhibits including setting up the Gibbon Island from scratch.



Left: Staff experiencing field work with our conservation partners Free the Bears (bottom) and Malaysian Conservation Alliance for Tigers (top).

Well-trained Workforce

People are the bedrock of our organisation. Having a well-trained workforce ensures that we keep abreast of industry trends and best practices, reaping greater efficiency and effectiveness. Through continual training programmes, conferences, and study trips, our employees acquire the required specialised skills and knowledge to deliver the highest possible animal welfare standards and exceptional guest experience while leveraging on evolving technologies to enhance productivity.



Progressive Wages Linked to Training Milestones

In July 2023, we implemented Competency Based Pay (CBP) progression to complement the existing development programme framework for our keepers and animal presenters. The Zookeepers Development Programme and Animal Presentation Development Programme map out the competencies and training required at various job levels. Under CBP, upon completion of training milestones, employees will be upgraded to higher job titles with corresponding adjustments to their salaries.

We were accredited with the Progressive Wage Mark (PWM) in September 2023 in recognition of the progressive wages that we and our contractors pay to staff covered under the respective sectoral or occupational progressive wage models. Our approach aligns to the government's drive to uplift wages of low-wage workers. Similar to CBP, the PWM benefits employees by mapping out a clear career pathway for wages to rise along with training and improvements to productivity and standards.

Fostering A Coaching Culture

Fostering a coaching culture provides a conducive environment to actualise our leadership philosophy - Inspire, Empower and Engage. Grounded in a growth mindset and a foundation of trust, collaboration and accountability, two new leadership programmes were launched - 'The Leader as Coach' and 'GROW Coach'. More than 100 people managers learnt the tactics in conducting effective coaching conversations. Thereafter, they were engaged in a six-week coaching contract with their accountability partners to continue their development and ensure the retention of skills.



Over 100 people managers learnt how to conduct effective coaching conversations and other coaching skills.

Uplifting Animal Care and Welfare Standards

The Zoological Information Management System (ZIMS) is an application used by zoos and aquariums globally. Included in this application is a husbandry module that manages information on animal behavioural observations, enrichment, training and feed logs. To raise our ZIMS proficiency, the Animal Data Management and Transactions (ADMT) team conducted four training sessions for 55 life sciences staff. The

team also covered the Care and Welfare (CAW) module which enables the tracking of specific parameters in our animals based on the five domains model of welfare. Close to 50 animals are being monitored using CAW, including 30 geriatric animals. Separately, over 80 staff received further training in CAW dedicated to different taxa with geriatric and other conditions that require additional monitoring.



Staff being trained on the finer aspects of utilising the Zoological Information Management System (ZIMS).

Animal Welfare Workshop

The workshop, led by an animal welfare expert from the UK, was conducted over five days. It deep dived into pertinent areas such as bridging welfare knowledge gaps, upskilling animal care and welfare, and integrating animal welfare considerations into daily activities.

Acquiring Snake Handling Skills

Staff at Bird Paradise underwent a herpetology training programme on the best handling practices for venomous and non-venomous snakes. The training sought to impart basic skills required to work safely, aligned to Mandai's safety protocols. Amongst the topics covered were safe removal of snakes, antivenom management, and the use of personal protective equipment and other devices.



Mutual Learning at Annual Zoo Conferences

Our staff members participated in many global zoo conferences and workshops to share knowledge and learn from their peers, further bolstering workforce capacity.

Six Mandai representatives from the Animal Care and Veterinary Healthcare teams attended the EAZA (European Association of Zoos and Aquariums) 2023 Annual Conference in Finland. They joined over 900 global counterparts representing many renowned zoological institutions. They delivered updates at eight Taxon Advisory Groups and other working groups, and 12 presentations including the following:



‘Songbirds at Mandai’s newly-opened Bird Paradise’
 ‘A Pandemonium of Parrots: Mixed Parrot Flocks at Bird Paradise’
 ‘How to Make Birds (Even More) Interesting to Zoo Visitors?’

Likewise, Mandai was well represented at the 31st SEAZA (Southeast Asian Zoos and Aquariums Association) Conference by 34 staff members. The gathering, held in Taiping Zoo, Malaysia, was themed ‘Keeping Zoos Relevant’ with the focus on welfare, conservation and education. Mandai fielded 14 oral, four poster and one booth presentation. Particularly well received sharing was the booth presentation on ‘Kembara Nusantara’ an innovative programme that engage preschoolers in learning the Malay language through animal ambassadors. Generating equally keen interest in the audience were oral presentations on ‘Facilitating Proactive Healthcare for Large Carnivores Using Behavioural Management’ and ‘Patient Management at the Zoo Hospital Ward in Mandai Wildlife Reserve’.

1, 2 & 3: Some 34 staff members attended the 31st SEAZA (Southeast Asian Zoos and Aquariums Association) Conference with the theme ‘Keeping Zoos Relevant’, focusing on welfare, conservation and education.



Nurturing An Innovative Culture

As we transit from wildlife parks to an integrated wildlife destination, there is an urgency to challenge the status quo in the spirit of growth and transformation. Building on our healthy innovative culture, we double down on efforts to foster an even more conducive environment that fuels creativity and encourages experimentation. While we continued to tap into Singapore's vibrant technology ecosystem to co-create innovative and smart solutions that enhance productivity, guest experiences and animal welfare, we also explored non-tech solutions to provide profound experiences that connect guests to wildlife.



Winning SBR Technology Excellence Award

Bird Paradise features eight huge aviaries at towering heights and ensuring mesh integrity is a huge challenge. Mesh inspection is traditionally a manual and error-prone task. Our Transformation Office explored AI-powered aviary mesh monitoring system which can autonomously detect breaches in wire mesh by analysing vibration patterns in

real time to enhance the safety and welfare of our birds. The successful proof of concept for the system demonstrated the potential of advanced technology in avian care and helped us clinch the SBR (Singapore Business Review) Technology Excellence Award in the Hospitality and Leisure category.



Mandai as Living Lab for Innovation

Since June 2021, Mandai has been leveraging on innovative technology through Infocomm Media Development Authority's (IMDA) Open Innovation Platform with 15 projects and proposals to date. During the FY, we signed a two-year memorandum of intent with IMDA to drive digital transformation in autonomous mobile robots, sustainability and immersive experience. This positions Mandai as a Living Lab for Innovation, with research and development funded by IMDA and its innovation partners, while we contribute domain expertise, use cases, and innovation management.



Mandai's Deputy CEO Ms Belina Lee and IMDA's Assistant Chief Executive Dr Leong Der Yao at the signing of the Memorandum of Intent to drive digital transformation in Mandai.

Mandai Innovation Seminar 2024

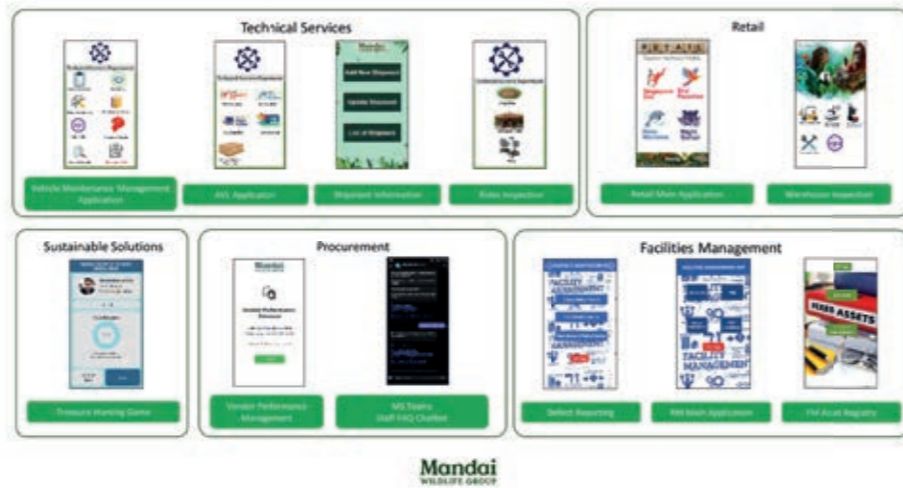
Encouraged by the response for the inaugural innovation seminar held in 2022, we continued to play the role of a catalyst to promote innovation and brought Mandai Innovation Seminar 2024 to over 160 participants from 45 companies, fostering meaningful engagements with three speakers and four panelists. The seminar explored the dimensions of generative AI with a sustainability focus and facilitated the exchange of ideas and networking amongst the participants.



Panel discussion at Mandai Innovation Seminar 2024.

Enhancing Productivity Through Technology

Since 2021, staff from various departments have formed Technology Special Interest Groups to spearhead solutions that enhance productivity in their area of work. They have created over 10 mobile and desktop applications using Microsoft Power Apps, 36 automated cloud and desktop flows, 10 dashboards and one chatbot, with estimated savings of over 4,000 manhours.



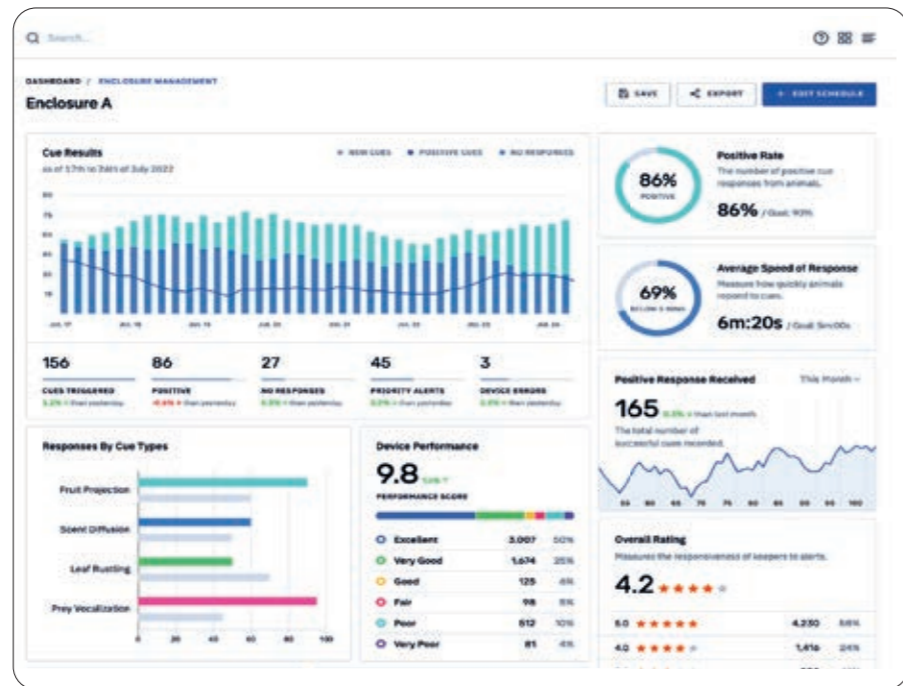
We have created more than 10 desktop and mobile applications using Microsoft Power Apps to enhance a variety of operations.

Transformation Visioning Workshops

These cross-departmental workshops have been change enablers, with over 400 ideas received under the Performance Track and more than 180 optimisation opportunities identified under the People Track.

Generative AI

We set up a generative AI council and established guidelines to facilitate a smooth journey for all staff to embrace AI. Workshops were also conducted to provide additional guidance and support.



Animal Devices Dashboard

Transforming Our Guest Experiences

Our Guest Satisfaction Survey identifies key areas of improvements in guest experiences by understanding their expectations and perceptions of our parks' offerings. We are pleased to have retained a high Guest Satisfaction Score of 87%, which is 13% above the Customer Satisfaction Index for Singapore's tourism sector. Guests indicated greater satisfaction with our Retail and Food and Beverage touchpoints, including staff service, clean ambience, quality of food, and queue time.

Customer-centricity is key to delivering differentiated experiences for various guest

segments. Today's guests seek meaningful interactions with animals, prioritise social-first research, and have heightened expectations for tech-enabled experiences. We have responded by increasing touchpoints and interactions with animals and helping guests build tailored itineraries, amongst other measures.

We are transitioning from providing great experiences to delivering truly inspiring ones, and from standardised to personalised offerings. Looking ahead, we aim to identify the core experiences and moments that truly delight our guests and deepen their emotional connection to wildlife.



With our guiding principle 'Every Guest Leaves Inspired', we are transitioning from providing great experiences to delivering truly inspiring ones, and from standardised to personalised offerings.

Engaging The Community

We constantly strive to make our parks accessible to every segment of our community by working closely with Social Service Agencies (SSAs) and other stakeholders. In line with our commitment to inclusivity, we warmly welcome those with special needs, the disadvantaged, at-risk youths, and the elderly. In FY23, 31,000 beneficiaries from various SSAs enjoyed complimentary admission and tailored programming at our parks. We also deepened our partnership with Special Education (SPED) teachers to co-create programmes and resources for special needs students.



Career Exposure Workshop for Youths

Since 2021, we have been collaborating with Fei Yue Community Services to reach out to youths who are Not engaged in Employment, Education or Training (NEET) through career exposure workshops. We are delighted to announce our first success story – Mr Ali Pesal, a youth from the previous year’s engagement, has since joined Mandai as a full-time junior keeper. He also served as a role model to inspire

other youths in the programme by sharing his journey in securing a career in Mandai.

With each run, we enhanced the programme to ensure that it best served the youths. The participants worked alongside keepers, trainers and presenters to learn about their roles. They emerged with a better understanding of the life skills needed to work with animals in a zoo setting.



Ali Pesal, who participated in the previous year’s Career Exposure Workshop, is now a full-time junior keeper at the Zoo.

Autism Awareness Weekend

In support of World Autism Month, we organised an Autism Awareness Weekend on 6 and 7 April 2024 at River Wonders for the sixth year running. We opened the park an hour earlier to allow guests to enjoy a quiet morning. Our specially curated Activity Booth not only offered sensory play for neuroatypical children but also engaged park guests to raise awareness about autism.



Our sixth edition of the Autism Awareness Weekend at River Wonders.

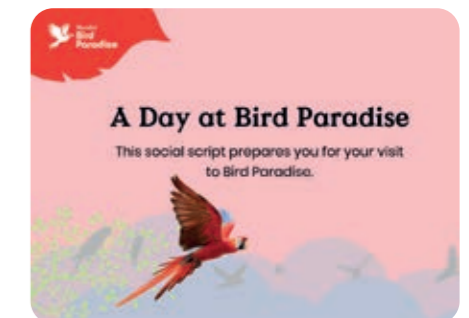
Mandai Gives Back @ Singapore Zoo

We joined hands with corporate sponsor GIC to organise our fourth Mandai Gives Back community event on 29 October 2023. Over 800 beneficiaries and caregivers from 15 Social Service Agencies serving the elderly, migrant workers, and young families were treated to exclusive guided tours, animal presentations and refreshments. Event booths manned by GIC staff volunteers were especially popular with the beneficiaries who enjoyed the opportunities to learn about wildlife through hands-on activities and interactive games.



Co-creating In-park Programmes with SPED Schools

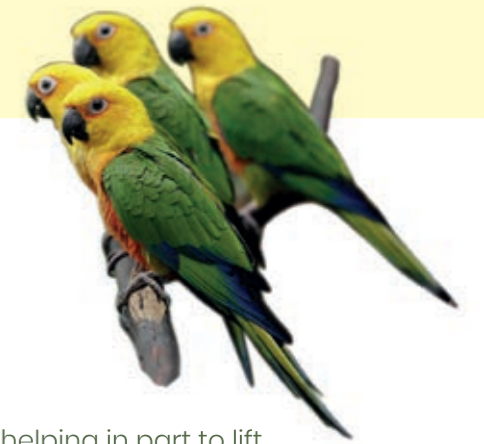
To foster greater inclusive learning, we held a focus group session with Special Education (SPED) teachers to explore inclusive programming at Bird Paradise, supported by our sponsor, Meta. Collaborating with educators from Rainbow Centre (Margaret Drive) and APSN Chaoyang School, we will co-create a SPED educators guide to Bird Paradise tailored for children with autism and multiple disabilities as well as a ‘Penguin Adventure’ facilitated programme designed for neurodiverse students. Resources will also be dedicated to developing sensory kits and additional educational offerings for SPED schools. Our staff and volunteers will undergo training to better serve neurodiverse guests.



Expanding the range of educational resources such as social scripts and sensory kits will facilitate meaningful visits to our parks for neurodiverse guests.



Sustaining Financial Performance



The newly opened Bird Paradise attracted one million guests, helping in part to lift total attendance to 4.43 million, a 54% jump compared to the previous reporting period. While tourist arrivals in Singapore could not match pre-Covid numbers, our parks enjoyed strong rebound in most market segments, thanks to the staunch support from STB and trade partners, and our social-first marketing strategy. The opening of the new KidzWorld, innovative marketing campaigns and robust membership drive sparked renewed local interest. Correspondingly, revenue from F&B and retail operations saw an impressive growth.

Our perpetual rejuvenation of exhibits and facilities lays the foundation for repeat visits by addressing pain points and offering exceptional guest experiences.

FY23/24 HIGHLIGHTS

- Total attendance across four parks reached **4.43** million, a steep increase of **54%** compared to last FY.
- Bird Paradise welcomed **one million** guests within 11 months of its opening.
- Singapore Zoo turned 50 and marked the milestone with the **Golden Zoobilee Celebrations**.
- River Wonder celebrated its 10th birthday by inviting guests on a **Voyage of Rediscovery**.
- The **new KidzWorld** presents children with a wonderland to discover the world of animals and connect with nature through play.
- Night Safari unveiled a **new bull elephant exhibit** to present the tram finale on a high note.
- We secured key naming rights sponsors, lending their names to **Shaw Foundation Australian Outback**, **Rwanda Nyungwe Forest Heart of Africa** and **Pavilion Capital Giant Panda Forest**.

Driving Footfall

It has been a tremendous year in driving footfall with attendance hitting 4.43 million, just 0.8 million short of the record attendance achieved pre-Covid. We continued to explore new tourist markets and grow our presence through collaborations with trade partners and via social channels. On the local front, we drove visitations through key campaigns, promotions with trade partners and Friends of Wildlife membership. Securing a total of 1,622 family days and corporate events contributed significantly to the growth in attendance.



We also launched Backstage Pass – Incredible Invertebrates to take guests behind-the-scenes and celebrate the roles insects and other invertebrates play in maintaining a healthy planet. The Golden ZOObilee Celebrations culminated in the launch of the new KidzWorld in October.



Mandai Wildlife Run attracted nearly 5,000 participants.

In-Park Campaigns

Golden ZOObilee Celebrations

To mark Singapore Zoo's golden jubilee, we curated a slew of activities that spanned seven months.

The festivities kicked off in May 2023 with the ART-ZOO Happy ZOObilee Party featuring Instagram-worthy inflatable art sculptures of our iconic animals, a giant inflatable art playground and interactive trail stations where guests learnt about our star animals' contributions to the rich heritage of Singapore Zoo. In September, Mandai Wildlife Run attracted nearly 5,000 participants including 800 runners whose participation was sponsored by Lam Soon Singapore.



Celebrating the Singapore Zoo's 50th birthday with Happy ZOObilee.



Backstage Pass – Incredible Invertebrates where guests get close to spineless wonders and discover the huge roles they play in ecosystems.

Secret Wild-erland

In a day-to-night Secret Wild-erland experience from November 2023 to March 2024, guests plunged into the Amazon Flooded Forest at River Wonders to discover the hidden secrets of its inhabitants. The magic continued at the Night Safari where guests stepped into the 'Big Book' for a multi-sensory journey highlighting elusive creatures of the night. At the Mystical Bar in Tipi Tent, they savoured light bites and beverages presented by local bar Jekyll and Hyde while enjoying Aurora Australis digital displays, created in partnership with Air New Zealand.



Secret Wild-erland presented a day-to-night experience at River Wonders and Night Safari.

Voyage of Rediscovery

River Wonders marked its 10th anniversary by inviting guests on a voyage of rediscovery. Between February and April 2024, guests enjoyed exclusive deals, new experiences and fun activities to discover hidden gems in our river stars.



River Wonders marked its 10th anniversary by offering a voyage of rediscovery at Asia's first and only river-themed wildlife park,

Easter Eggs-travaganza

Continuing the tradition of celebrating Easter at Jurong Bird Park, we rolled out an enhanced version of Easter Eggs-travaganza in Bird Paradise, with digital and on-site engagement. While guests went on a hunt for easter eggs around Winged Sanctuary, they discovered more about threatened birds and the conservation projects we support to save these birds from extinction.



Easter Eggs-travaganza engaged guests with physical and digital easter egg hunts and other activities.

Curating Exclusive Wildlife Experiences

Our Experience Development team has pulled out all stops to develop one-of-a-kind wildlife experiences, repositioning Mandai as an iconic wildlife destination. We offer private tours, backstage passes, wild explorer camps, glamping and personalised experiences to commemorate special life events.



Marriage proposal at River Wonders with our capybaras.



Glamping with the Penguins.

Marketing and Partnerships

Branded Entertainment with Content Partnerships

In our quest to promote Mandai as a must-visit destination for tourists, we embarked on our first branded entertainment as the sole sponsor for the 'Running Man' Singapore episode. The star-studded Korean cast visited Bird Paradise and Night Safari. The Singapore episode garnered over 600 million views across 20 markets. In addition, we welcomed two popular dance artists Bada Lee and Kirsten Dodgen from the hit Korean reality dance show 'Street Woman Fighter' to Bird Paradise. They created a Visit Singapore destination video for the Korean market which attracted 3.4 million views.



The 'Running Man' Singapore episode in November 2023 garnered over 600 million views across 20 markets.

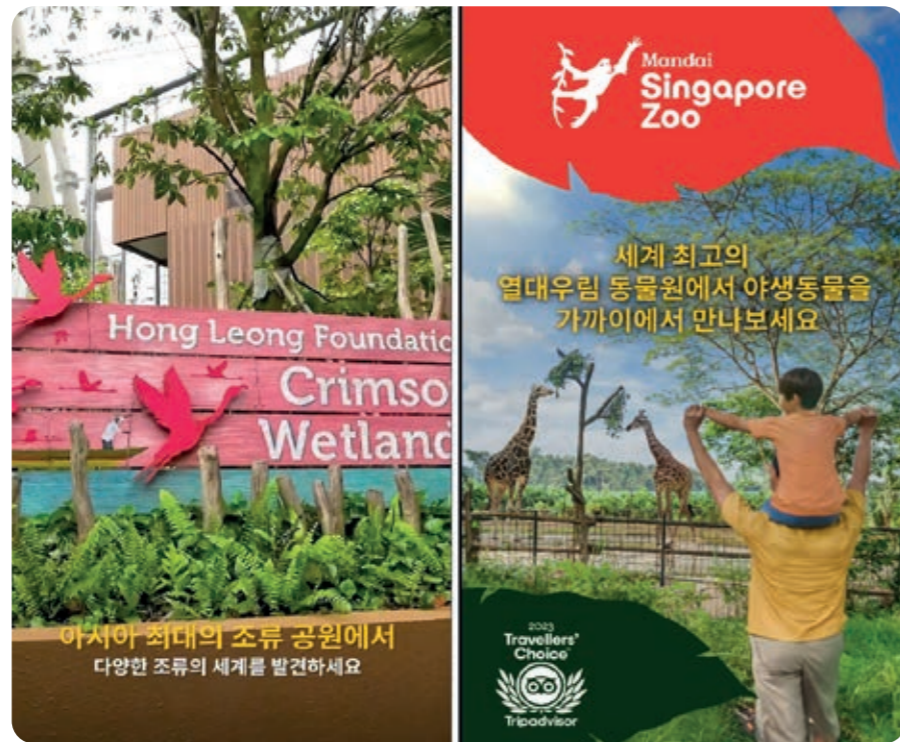


The Visit Singapore destination video for the Korean market featuring two popular dance artists hit 3.4 million views.

Social-First Approach to Accelerate Tourism Recovery

With social platforms exerting an increasingly strong influence over the choice of holiday destinations, we adopted a social-first strategy, running pre-arrival ads on TikTok, Facebook and Instagram with multi-language videos and creatives in seven key markets. This initiative drove over 180 million impressions.

Apart from pre-arrival marketing activation, we also



We now have a Korean lite site on Mandai.com to help Korean tourists plan their visit.



Changi Airport digital baggage screens invite international visitors to visit Mandai Wildlife Reserve.

shore up post-arrival presence at key touchpoints including Changi Airport.

Leveraging the always-on content in social channels WeChat, Douyin and Weibo, we ran livestreams with key opinion leaders and key opinion consumers to heighten awareness of our park experiences in the Chinese market.

Partnerships with Regional Travel Agencies

We inked memorandums of understanding (MOUs) with key travel partners such as Klook, Go City and CTRIP to tap on their network and penetrate tourist markets in China and other Asian countries, Australia, the US and UK. To expand our Japanese market segment, we forged a tripartite partnership with JTB and JTB Corp, Japan's largest travel agency.



With a tripartite partnership with JTB and JTB Corp, our goal is to increase Japanese visitorship to our parks.



Our MOU with Klook aims to create marketing campaigns that build strong credentials and reach out to Gen Z and millennial travellers.

International visitors could enjoy complimentary experiences including Breakfast in the Wild at Singapore Zoo as subsidised by STB.

Boosting China's Tourism Recovery

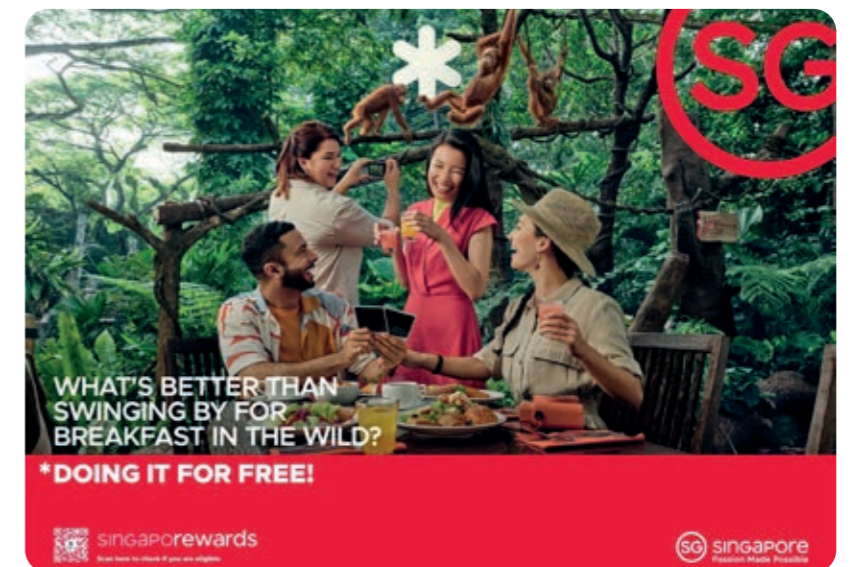
We spared no efforts in forging partnerships to boost tourism recovery in the all-important Chinese market. Apart from working with travel and leisure partners Mafengwo and KEEP to amplify awareness of Mandai's offerings, we also collaborated with payment partners Alipay and WeChat Pay to drive conversions on our WeChat eCommerce mini-programme.



We amplified awareness of Mandai's offerings to boost tourism in the all-important Chinese market.

SingapoRewards: Breakfast in the Wild

Singapore Tourism Board (STB) launched SingapoRewards globally to offer international visitors complimentary experiences in Singapore. Singapore Zoo was part of this year-long campaign which attracted close to 18,000 tourists for Breakfast in the Wild.



Rejuvenating In-park Experiences

We made good progress in rolling out our master plan to rejuvenate existing parks, ensuring that they maintain their shine and offer equally compelling experiences as the new developments. In the FY, we launched two major projects - the new KidzWorld at Singapore Zoo and bull elephant Chawang's exhibit as the feature of Night Safari's tram finale. We also unveiled the Into the Wild animal presentation at Singapore Zoo with a conservation-focused storyline brought to life by an expanded cast of animal stars.



Launch of the New KidzWorld @ Singapore Zoo

The new KidzWorld was officially launched on 25 October 2023 by First Lady Ms Jane Ittogi. KidzWorld augments Singapore Zoo's 50-year heritage of providing children a living classroom for animal encounters and inspiring them to respect all creatures great and small. The attraction is designed to facilitate exploration of the animal world through close interaction and discovery of nature through play. 'Animal Land' is an outdoor home for falabellas, goats, ducks and macaws, while 'Little Paws' is an indoor space where children get to interact with rabbits and learn how to care for them.



First Lady Ms Jane Ittogi with Mandai's Group CEO Mr Mark Barclay at the launch of the new KidzWorld on 25 October 2023.



1 - 6: Activities galore at the new KidzWorld, providing kids close interactions with various animal species and other experiences.

KidzWorld offers two play zones, a wet play area, and a 240-seat amphitheatre where families can watch animal stars in action and break into animal-inspired dances. At the end of the day, families can join the trainers for a 'Pack Walk' to stroll alongside falabellas, dogs, cats, ferrets, and birds.

As 'Home of the Ranger Buddies', KidzWorld offers edutainment programmes that aim to nurture every child into a future-ready global citizen.



Mammoth Attraction Anchors Tram Finale

The refreshed tram experience at Night Safari features bull elephant Chawang's new exhibit as the grand finale. To create a sense of adventure and immersiveness, the tram ride offers guests a simulated river crossing experience while admiring majestic Chawang in full view. For guests on foot, the new elephant viewing deck affords a spectacle of Chawang in his vast habitat.

The female elephants in Night Safari are housed separately from the male elephants. Their exhibit is being upgraded to simulate a Southeast Asian grassland habitat.

Right : Female elephants in their upgraded exhibit.

Below : Chawang, our majestic bull elephant, provides a grand finale to the tram ride at Night Safari.



Into the Wild Presentation Wows Zoo Goers

Months of ideation and daily animal conditioning culminated in the successful launch of Into the Wild at the Zoo's Shaw Amphitheatre. The presentation takes the audience on a journey around the world to discover amazing wildlife, inspiring them to commit to the vision of a biodiverse planet.

Singapore Zoo's latest Into the Wild presentation showcases the amazing adaptations and abilities of wildlife.



Our Sponsors and Adopters

We are immensely thankful for the unwavering support of our long-standing sponsors and adopters, and equally grateful to new partners who believe in our cause.



Tencent has sponsored the Ranger Stations in the Singapore Zoo and Night Safari.

During the FY, 81 organisations and individuals came onboard our exclusive adoption programme (see pages 14 to 17 for the complete list). Of these, 39 were new adopters and sponsors including Sony Electronics, Tencent, Singlife and Etonhouse International School. Additionally, 500 members of the public supported wildlife conservation via the Adopt an Animal Programme and other micro sponsorships.



Etonhouse International School is the sponsor for Pack Walk at Singapore Zoo's new KidzWorld.

For Bird Paradise, Shaw Foundation has lent their name to the Australian Outback aviary while Rwanda Development Board has backed the Rwanda Nyungwe Forest Heart of Africa aviary. Over at River Wonders, Pavilion Capital has become the naming rights sponsor for the Giant Panda Forest.



Naming rights sponsorship of two aviaries in Bird Paradise.

Our partnership with Guardian Health and Beauty, adopter of orangutan Satria, went a notch higher with a three-year programme that advocates for reduced usage of plastic bags. Partial proceeds from the five cents charged per bag at Guardian's 128 retail outlets go towards supporting our sustainability and conservation efforts.



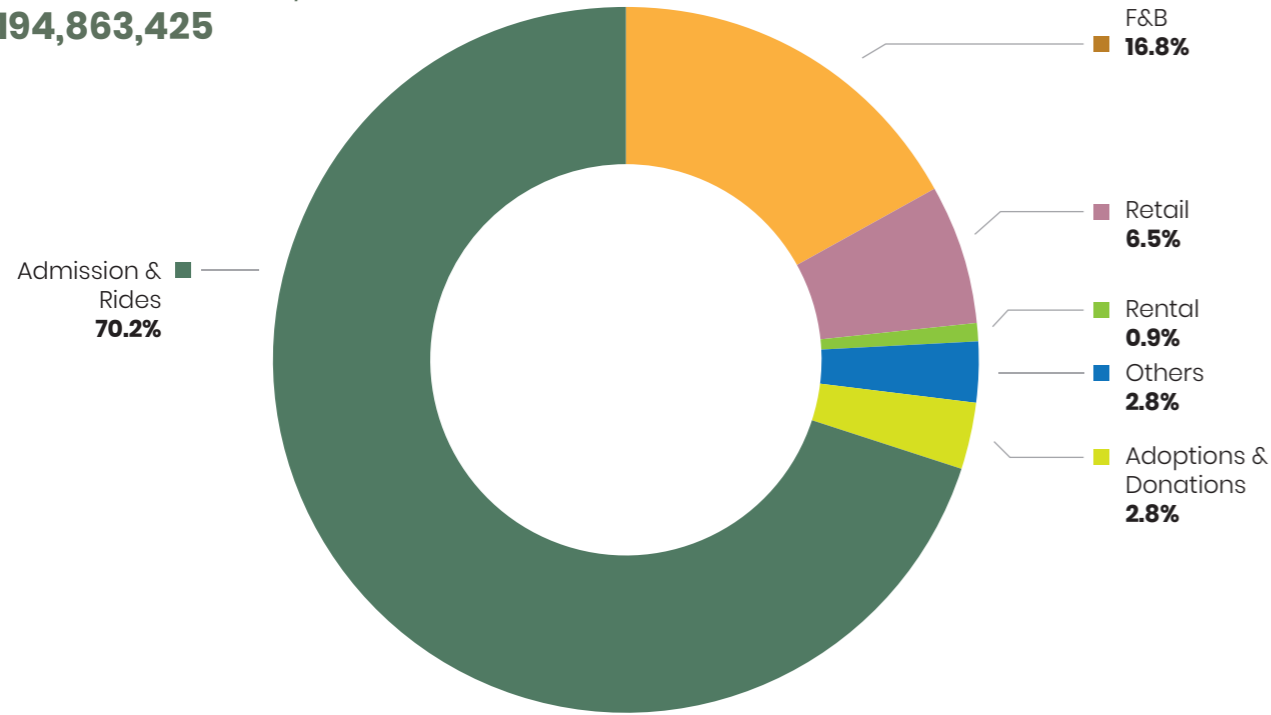
Meta's sponsorship for Special Education (SPED) School Programmes at Bird Paradise is the first of its kind. Their support enables us to build on existing offerings for special needs students through collaboration with SPED educators, and expand our reach to all 23 SPED schools in Singapore. It takes us closer to being a truly inclusive Mandai.



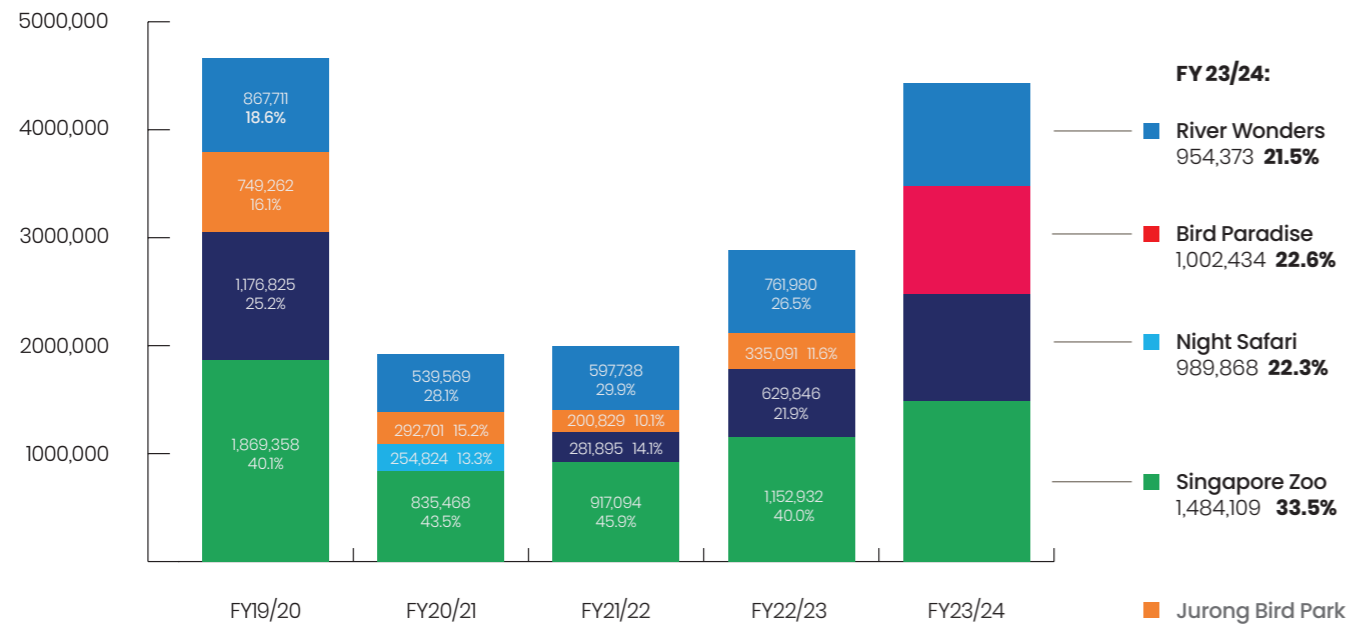
In addition to supporting us through our animal adoption programme, Guardian Health and Beauty joined forces with us to advocate for sustainable living.

Financial & Attendance Highlights

REVENUE FOR FY23/24
\$194,863,425



TOTAL GUESTS FOR FY23/24
4,430,784



The Year Ahead

Following the launch of Bird Paradise, we look forward to the next phase of the Mandai Rejuvenation Project when we will unveil Mandai Boardwalk, Mandai Wildlife Resort and our fifth wildlife park Rainforest Wild Asia, which will be the first zoo in the region to integrate adventure elements into its core design.

As we continue our journey in transforming Mandai Wildlife Reserve into a nature and wildlife destination, we remain focused on the key priorities for:

- Employee upskilling to outdo ourselves in animal care and welfare standards, and in delivering seamless and meaningful wildlife experiences across Mandai Wildlife Reserve.
- Master plan implementation to revitalise existing parks. We are gearing up to offer a novel experience in Night Safari with the new Pangolin Trail which tells the story of our ongoing efforts in conserving this critically endangered species. Work will soon begin to build the Marine Coastal Exhibit for California sea lions, harbour seals and African penguins. It will be the first underwater viewing habitat in the Zoo to be integrated with an F&B venue.
- Deployment of more resources for enhanced animal care and welfare standards, local and regional biodiversity protection, conservation communication and inclusive conservation education.



Conservation Projects & Partnerships Supported in FY23/24

No.	Project Name	Country	Species	Taxon Group	Partner Organisation
1	Critical law enforcement support for Cambodia's Cardamom Rainforest	Cambodia	Multi taxa	Multi taxa	Wildlife Alliance
2	Conservation of the Critically Endangered Southern River Terrapin <i>Batagur affinis</i> in the Sre Ambel River System in Cambodia	Cambodia	Southern river terrapin	Reptile	Wildlife Conservation Society (Cambodia)
3	Restoring a viable population of Siamese Crocodile within the Sre Ambel River System, Cambodia	Cambodia	Siamese crocodile	Reptile	Wildlife Conservation Society (Cambodia)
4	Building on success – strengthening ex-situ infrastructure and capacity at the Koh Kong Reptile Conservation Centre to ensure a long-term future for Southern River Terrapin (<i>Batagur affinis</i>)	Cambodia	Southern river terrapin	Reptile	Wildlife Conservation Society (Cambodia)
5	Assessing the priority habitats and distribution for breeding populations of Red-headed Vultures in the Eastern Plains Landscape	Cambodia	Red-headed vulture	Bird	BirdLife International (Asia) Limited
6	Advancing conservation of lower Mekong wetlands at Anlung Pring, Cambodia: towards a Sarus Crane safe landscape	Cambodia	Sarus crane	Bird	BirdLife International (Asia) Limited
7	Climate-resilient sustainable agriculture to improve livelihoods and biodiversity habitat quality at Anlung Pring Protected Landscape	Cambodia	Sarus crane	Bird	Wildfowl & Wetlands Trust
8	Addressing Human Orangutan Conflict in Agricultural Landscape in Northern Sumatra in Collaboration with Local Communities and Key Stakeholders	Indonesia	Sumatran orangutan, Tapanuli orangutan	Mammal	Orangutan Information Centre
9	Wildlife Trade Mitigation Strategy, ambassadors capacity building and socio-demographic pre-surveys for the formation of the new forest conservation community forums in Manembo-nembo Wildlife Reserve	Indonesia	Sulawesi macaque	Mammal	Yayasan Kinatouan Pelestarian Alam Sulawesi
10	Project Kapi Owa: Javan Gibbon Conservation in Central Java, Indonesia	Indonesia	Multiple primate species	Mammal	Yayasan Swaraowa
11	Conservation of the Bali Starling within the Melinggih Kelod village through the Open Community Learning Program	Indonesia	Bali starling	Bird	Begawan Foundation
12	Saving the Indonesia's Wild Bird Populations	Indonesia	Multiple bird species	Bird	Yayasan Terbang Indonesia (FLIGHT)
13	Preservation of Indonesian endemic species through conservation breeding and other conservation programmes at Cikananga Wildlife Center (West Java, Indonesia)	Indonesia	Multiple bird species	Bird	Yayasan Cikananga Konservasi Terpadu
14	EAZA Komodo EEP conservation programme: Wao Wuul Reserve Protection Programme 2023	Indonesia	Komodo dragon	Reptile	European Association of Zoos and Aquaria
15	Parrot Conservation Action in Maluku	Indonesia	Multiple parrot species	Bird	Perkumpulan Konservasi Kakatua Indonesia
16	Conservation of Rote Island Snake-necked Turtle, <i>Chelodina mccordi</i>	Indonesia	Rote snake-necked turtle	Reptile	Wildlife Conservation Society – Indonesia Program
17	Conservation of the Critically Endangered Rote Island Snake-Necked Turtle	Indonesia	Rote snake-necked turtle	Reptile	Wildlife Conservation Society – Indonesia Program
18	An integrated project to combat climate change and songbird trade in West Kalimantan, Indonesia	Indonesia	Multi taxa	Multi taxa	Yayasan Planet Indonesia
19	Sustainable Operation of The ERU as part of the Way Kambas National Park ERU Program for Habitat Protection and HEC Mitigation	Indonesia	Sumatran elephant	Mammal	Community for Sumatra Nature Conservation / komunitas untuk Hutan Sumatera
20	Emergency support for core operations to conserve critically endangered Sulawesi Crested Black Macaques in a time of funder changes	Indonesia	Sulawesi macaque	Mammal	Yayasan Kinatouan Pelestarian Alam Sulawesi
21	Assessment and Conservation of Primates on the Mentawai Islands, Indonesia	Indonesia	Multiple primate species	Mammal	Yayasan Swaraowa
22	Collaborative Grass-roots Conservation of a Landscape of Hope: The Leuser Ecosystem	Indonesia	Multi taxa	Multi taxa	Yayasan Orangutan Sumatera Lestari – Orangutan Information Centre
23	Nantu Forest Conservation Programme, Sulawesi, Indonesia	Indonesia	Multi taxa	Multi taxa	Yayasan Adudu Nantu International
24	Assessing the freshwater biodiversity of the Muara Siran Peatland Landscape and Kelay River Ecosystem, East Kalimantan Province, Indonesia	Indonesia	Multi taxa	Multi taxa	The Nature Conservancy
25	An Opportunity to Save Simeulue's Critically Endangered Songbirds from the Brink of Extinction Through Community Conservation, Regenerative Agriculture and Eco-tourism	Indonesia	Barusan shama; Simeulue hill myna	Bird	Ecosystem Impact Foundation
26	LAO YOUTH FOR THE PLANET! Inspiring the next generation of Lao Nationals in biodiversity conservation and environmental protection	Lao PDR	No specific focal species	No specific focal species	Association Anoulak
27	Rediscovering Saola and securing a future for the Annamite Mountains	Lao PDR	Multi taxa	Mammal (primary), Multi taxa	Saola Foundation
28	Saving Saola: Innovative Conservation in the Annamite Mountains	Lao PDR	Multi taxa	Mammal (primary), Multi taxa	Saola Foundation
29	Disrupting illegal trade in bears and wildlife in Lao PDR	Lao PDR	Multiple species	Mammal	Free the Bears Ltd
30	Citizen Action for Tigers (CAT) Walk: engaging people to value and protect tigers and their habitat in Malaysia	Malaysia	Malayan tiger	Mammal	Wildlife Society of Selangor (WILD)
31	Venue cost for the Borneo Convention Centre Kuching (Presbytis genus conservation action planning workshop in Kuching)	Malaysia	Multiple primate species	Mammal	IUCN SSC Primate Specialist Group

No.	Project Name	Country	Species	Taxon Group	Partner Organisation
32	Translocating Burmese Star Tortoises (<i>Geochelone platynota</i>) at Shwe Settaw Wildlife Sanctuary: Reinforcing Success	Myanmar	Burmese star tortoise	Reptile	Turtle Survival Alliance
33	On the Road to Recovery: In- and Ex-Situ Conservation of <i>Batagur trivittata</i> in Myanmar	Myanmar	Burmese roofed turtle	Reptile	Wildlife Conservation Society
34	Recovering Burmese Star Tortoise (<i>Geochelone platynota</i>) populations at two wildlife sanctuaries in central Myanmar	Myanmar	Burmese star tortoise	Reptile	Wildlife Conservation Society
35	Safeguarding critically endangered endemics in Palawan - Phase 2	Philippines	Palawan pangolin, Palawan forest turtle	Multi taxa	Katala Foundation Inc
36	Building a sustainable bio-cultural landscape for the Taobuid and the Tamaraw in Mts Iglit-Baco Natural Park, Mindoro, Philippines	Philippines	Tamaraw	Mammal	D'Aboville Foundation and Demo Farm Inc
37	The West Visayas Species Recovery Project	Philippines	Multi taxa	Multi taxa	Talarak Foundation Inc
38	Project Palaka Transition Support	Philippines	Gigante wrinkled ground frog	Amphibian	Project Palaka (through Synchronicity Earth)
39	Philippine Eagle Wildlife Loan Agreement/MOU	Philippines	Philippine eagle	Bird	Philippine Eagle Foundation
40	CPSG fee for facilitation and development of Population Viability Analysis to inform Conservation Planning for the Philippine Eagle	Philippines	Philippine eagle	Bird	Global Conservation Network and IUCN SSC Conservation Planning Specialist Group
41	Saving Indigenous Cultures, Rivers, and Endangered Biodiversity within Indigenous territories through Nature-Based Solutions (SACRED-NBS)	Philippines	Multiple bird species	Bird	Philippine Eagle Conservation Program Foundation
42	Tackling Cross border bird trade: Indonesian parrots in the Philippines	Philippines	Multiple bird species	Bird	BirdLife International (Asia) Limited
43	Exploring microbiome dynamics and potential pathogenic risks in aquatic exhibits at Singapore River Wonders	Singapore	Multi taxa	Multi taxa	Tropical Futures Institute Limited
44	Outreach Activities for Our Wild Neighbours (OWN) Campaign	Singapore	Multi taxa	Multi taxa	Animal Concerns Research and Education Society
45	Every Singaporean a Naturalist (ESN)	Singapore	Multi taxa	Multi taxa	Nature Society Singapore
46	World Wildlife Day Regional Youth Symposium 2024	Singapore	NA	NA	Garden City Fund
47	Investigating the life history and ecology of threatened songbirds in Singapore	Singapore	Straw-headed bulbul; Chestnut-winged babbler; Short-tailed babbler	Bird	Sin Yong Chee Keita
48	Improving Captive Animal Welfare in Southeast Asia through SEAZA Auditor Training and Accreditation	Regional	Multi taxa	Multi taxa	Wild Welfare
49	Safeguarding Southeast Asia's wildlife from illegal and unregulated trade	Regional	Multi taxa	Multi taxa	TRAFFIC International Southeast Asia
50	Organisation of 11 th meeting of IUCN SSC Asian Elephant Specialist Group	Regional	Asian elephant	Mammal	Wildlife Trust of India
51	Understanding the trade in hornbills and Southeast Asian parrots	Regional	Multiple bird species	Bird	Monitor Conservation Research Society
52	Tackling the illegal trade in wild pigeons and doves in Indonesia	Regional	Multiple bird species	Bird	Monitor Conservation Research Society
53	The 5 th Asian Elephant Endotheliotropic Herpes Virus (EEHV) Working Group meeting	Regional	Elephant	Mammal	International Elephant Foundation
54	Strengthening the conservation of hornbills	Regional	Multiple hornbill species	Bird	Mabula Ground Hornbill Project
55	SHOAL/IUCN ASAP Freshwater Fish Programme Manager	Regional	ASAP fishes	Fish	Synchronicity Earth, SHOAL
56	Action for ASAP freshwater fishes	Regional	ASAP fishes	Fish	Synchronicity Earth, SHOAL
57	ASAP Species - Ex-situ Assessment	Regional	Multi taxa	Multi taxa	Copenhagen Zoo
58	Development of a metabarcoding protocol for prey species of the fossa to reduce carnivore-human conflict	Global	Fossa	Mammal	Chances for Nature
59	Guideline for responsible translocation of displaced organisms	Global	Multi taxa	Multi taxa	Wildlife Impact
60	Species360 Conservation Science Alliance (CSA) Support	Global	Multi taxa	Multi taxa	Species360
61	IUCN Chair Support for 2024	Global	Multi taxa	Multi taxa	IUCN Species Survival Commission
62	Reverse the Red - World Species Congress funding - WAZA Contribution	Global	Multi taxa	Multi taxa	Rewild
63	Amphibian Ark 2024	Global	Multiple amphibian species	Amphibian	Amphibian Ark
64	Support for veterinary operations for Save the Tasmanian Devil Programme 2023	Global	Tasmanian devil	Mammal	Department of Primary Industries, Parks, Water and Environment - Tasmania, Australia
65	Escalating Profile, Resources, and Engagement for Effective Conservation Translocations	Global	Multi taxa	Multi taxa	Panthera Corporation
66	Donation to the EAZA Ukraine Emergency Fund	Global	Multi taxa	Multi taxa	European Association of Zoos and Aquaria
67	IUCN SSC ASTSG in-person meeting	Global	Multi taxa	Multi taxa	Yayasan Planet Indonesia

Publications in FY23/24

Chong, S.M., Douay, G., Ahmad, A.A., Yeong, C.Y.F., Heng, Y., Oh, P.Y., Chua, D. and Xie, S., 2023. *Enterococcus casseliflavus* infection in a captive southern cassowary (*Casuarius casuarius*): clinical and post-mortem findings. *Journal of Veterinary Medical Science*, pp.23-0050.

Heng, Y., Hsu, C.D., Matthew, A. Oh, P.Y., Li, W.T., Xie, S. Management of *entamoeba invadens* in the herpetological collection at the Singapore Zoo. *Journal of Zoo and Wildlife Medicine* 54(2): 000-000, 2023

Douay, G., Yeo, W.C., Oh, P.Y., Chua, D., Sekar, S. Hematologic and biochemical reference intervals of a single population of captive Burmese Roofed Turtles (*Batagur trivittata*). *The Journal of Herpetological Medicine and Surgery*, Volume 33, No. 3, 2023 pp. 1-7 DOI: 10.5818/JHMS-D-20-00021

Visvanathan, N., Lim, J.Y.A., Chng, H.T. and Xie, S., 2023. A critical review on the dosing and safety of antifungals used in exotic avian and reptile species. *Journal of Fungi*, 9(8), p.810.

Heng, Y., Panarese, R., Hsu, C.D. and Xie, S., 2023. Management of a fatal outbreak of strongyloidiasis in a captive population of panther chameleons (*Furcifer pardalis*) with ivermectin. *Journal of Zoo and Wildlife Medicine*, 54(2), pp.282-291.

Heng, Y., Yeong, C., Yeo, W.C. and Mathew, A., 2023. Diagnostic imaging and orotracheal intubation in clinically healthy wild Sunda pangolins (*Manis javanica*) in Singapore. *Journal of Zoo and Wildlife Medicine*, 54(3), pp.553-560.

Froehlich, F., Forbes, N., Carrasco, D.C., Ludynia, K., Parsons, N.J., Worsfold, R.D. and Dutton, T., 2023. The effects of critical care nutrition on weight gain in African penguin (*Spheniscus demersus*) chicks. *Journal of Avian Medicine and Surgery*, 37(3), pp.217-225.

Xie, S. and Tomic, D.H., 2024. Avian chlamydiosis. *Ecology of Wild Bird Diseases*.

Xie, S., Chong, S.M. and Lee, J., 2024. Avian Mycobacteriosis. *Ecology of Wild Bird Diseases*.

Bao, Q., Tay, N.L., Lim, C.Y., Chua, D.H.H., Kee, S.K., Choolani, M., Loh, Y.H., Ng, S.C. and Chai, C., 2024. Integration-free induced pluripotent stem cells from three endangered Southeast Asian non-human primate species. *Scientific Reports*, 14(1), p.2391.

Gao, H., Hamp, T., Ede, J., Schraiber, J.G., McRae, J., Singer-Berk, Lee, J., and Sundaram, L., 2023. The landscape of tolerated genetic variation in humans and primates. *Science*, 380(6648), p.eabn8153.

Kuderna, L.F., Gao, H., Janiak, M.C., Kuhlilm, M., Orkin, J.D., Bataillon, T., Manu, S., Valenzuela, A., Bergman, J., Rousselle, M., Lee, J., and Silva, F.E., 2023. A global catalog of whole-genome diversity from 233 primate species. *Science*, 380(6648), pp. 906-913.

Wu, M.Y., Chong, H.W., Tan, Y.Y., Lim, B.T., Wong, A.M., Oh, R.R.Y., Lee, J.G., Ng, E.Y. and Rheindt, F.E., 2024. Genomic data reveal shift in geographic source of an illegally traded songbird. *Conservation Genetics*, 25(1), pp.179-187.

Tidière, M., Colchero, F., Staerk, J., Adkesson, M.J., Andersen, D.H., Bland, L., Böye, M., Brando, S., Clegg, I., Cubaynes, S., Laule, G., Conde, D., 2023. Survival improvements of marine mammals in zoological institutions mirror historical advances in human longevity. *Proceedings of the Royal Society B*, 290(2009), p.20231895.

Kuderna, L.F., Ulirsch, J.C., Rashid, S., Ameen, M., Sundaram, L., Hickey, G., Cox, A.J., Lee, J.G., and Kyle Kai-How Farh 2024. Identification of constrained sequence elements across 239 primate genomes. *Nature*, 625(7996), pp.735-742.

Bao, Q., Tay, N.L., Lim, C.Y., Chua, D.H.H., Kee, S.K., Choolani, M., Loh, Y.H., Ng, S.C., and Chai, C., 2024. Integration-free induced pluripotent stem cells from three endangered Southeast Asian non-human primate species. *Scientific Reports*, 14(1), p.2391.

Tay, C., McWhorter, T.J., Xie, S., Mohd Nasir, T.S.B., Reh, B. and Fernandez, E.J., 2023. A comparison of staff presence and signage on zoo visitor behaviour. *Zoo Biology*.

Collins, C., Barr, Y., McKeown, S., Scheun, J., Tay, C. and O'Riordan, R., 2023. An international investigation of the prevalence of negative visitor behaviour in the zoo. *Animals*, 13(16), p.2661.

Ng, S.C., and Cremades, M., 2024. The re-introduction of the Oriental Pied Hornbill to Singapore. *Peace with Nature: 50 inspiring essays on nature and the environment*, pp. 267-273.

Ang, A., and Jabbar, S., 2024. Primates of Singapore. *Peace with Nature: 50 inspiring essays on nature and the environment*, pp. 9-14.

Focal Species

Native species in Mandai Wildlife Reserve prioritised for conservation and management.

NO	Focal Species
1	Sunda pangolin
2	Sunda colugo
3	Long-tailed macaque
4	Bamboo bats
5	Straw-headed bulbul
6	Fireflies
7	Green tree snail
8	Stingless bee

Staff As Species Coordinators For Managed Species Programmes

NO	SPECIES COORDINATOR	SPECIES	PROGRAMME*
1	Anais Tritto , Assistant Vice President, Animal Care	Black-winged Myna	EEP, ISB
2	Anais Tritto , Assistant Vice President, Animal Care	Victoria Crowned Pigeon	EEP
3	Anais Tritto , Assistant Vice President, Animal Care	Santa Cruz Ground Dove	EEP
4	Wendy Chua , Curator, Primates, and Animal Data Management & Transactions	Bornean Orangutan	SSMP
5	Wendy Chua , Curator, Primates, and Animal Data Management & Transactions	Sumatran Orangutan	SSMP
6	Anand Kumar, Curator , Carnivores & Small Mammals	Sloth Bear	ISB
7	Anand Kumar, Curator , Carnivores & Small Mammals	Malayan Sun Bear	SSMP
8	Cecilia Tang, Curator , Rainforest Wild	Sunda Slow Loris	EEP
9	Mark Rusli , Animal Care Officer	Black Hornbill	EEP
10	Mark Rusli , Animal Care Officer	Moluccan Cockatoo	EEP
11	Rachel Lee , Keeper, Avian	Straw-headed Bulbul	EEP
12	Ade Kurniawan , Animal Care Officer	Sunda Pangolin	SSMP

*PROGRAMME

EEP – EAZA (European Association of Zoos and Aquaria) Ex-situ Programme

ESB – European Studbook

ISB – International Studbook

SSMP – SEAZA (Southeast Asian Zoos and Aquariums) Species Management Programme

Managed Species Programmes in FY23/24

SPECIES	COMMON NAME	PROGRAMME	IUCN RED LIST STATUS
1 <i>Acinonyx jubatus jubatus</i>	Southern Cheetah	EEP	VU
2 <i>Acridotheres melanopterus</i>	Black-winged Myna (Complex)	EEP	CR
3 <i>Aegyptius monachus</i>	Cinereous Vulture	EEP	EN
4 <i>Ailuropoda melanoleuca</i>	Giant Panda	GPCCB	VU
5 <i>Ailurus fulgens</i>	Red Panda	EEP	EN
6 <i>Aldabrachelys gigantea</i>	Aldabra Tortoise	EEP	VU
7 <i>Alligator sinensis</i>	Chinese Alligator	EEP	CR
8 <i>Allochrocebus lhoestii</i>	L'Hoest's Monkey	EEP	VU
9 <i>Alouatta caraya</i>	Black Howler Monkey	EEP	LC
10 <i>Amazona a. lilacina</i>	Ecuadorian Amazon	EEP	EN
11 <i>Amazona viridigenalis</i>	Green-cheeked Amazon	EEP	EN
12 <i>Anas bernieri</i>	Madagascar Teal	ESB	EN
13 <i>Anas melleri</i>	Meller's Duck	EEP	EN
14 <i>Anodarhynchus hyacinthinus</i>	Hyacinth Macaw	EEP	VU
15 <i>Anthracocebus malayanus</i>	Black Hornbill	EEP	VU
16 <i>Aotus griseimembra</i>	Grey-handed Night-monkey	EEP	VU
17 <i>Aptenodytes patagonus</i>	King Penguin	EEP	LC
18 <i>Apteryx mantelli</i>	Northern Brown Kiwi	SSP	VU
19 <i>Ara ambiguus</i>	Great Green Macaw	EEP	CR
20 <i>Ara glaucogularis</i>	Blue-throated Macaw	EEP	CR
21 <i>Ara rubrogenys</i>	Red-fronted Macaw	EEP	CR
22 <i>Aratinga solstitialis</i>	Sun Parakeet	EEP	EN
23 <i>Argusianus argus</i>	Great Argus	ESB	VU
24 <i>Asacornis scutulatus</i>	White-winged Duck	EEP	EN
25 <i>Astrochelys radiata</i>	Radiated Tortoise	EEP	CR
26 <i>Astrochelys yniphora</i>	Ploughshare Tortoise	EEP	CR
27 <i>Aythya baeri</i>	Baer's Pochard	ESB	CR
28 <i>Baelearica pavonina</i>	West African Crowned Crane	ESB	VU
29 <i>Bettongia penicillata</i>	Brush-tailed Bettong	EEP	CR
30 <i>Bubalus depressicornis</i>	Lowland Anoa	ISB	EN
31 <i>Bubo scandiacus</i>	Snowy Owl	EEP	VU
32 <i>Buceros bicornis</i>	Great Hornbill	EEP	VU
33 <i>Buceros hydrocorax / mindanensis</i>	Rufous Hornbill	EEP	VU
34 <i>Buceros rhinoceros</i>	Rhinoceros Hornbill	EEP	VU
35 <i>Bucorvus abyssinicus</i>	Northern Ground Hornbill	EEP	LC
36 <i>Bucorvus leadbeateri</i>	Southern Ground Hornbill	EEP	VU
37 <i>Burgeranus carunculatus</i>	Wattled Crane	ESB	VU
38 <i>Bycanistes brevis</i>	Silvery-cheeked Hornbill	EEP	LC
39 <i>Bycanistes buccinator</i>	Trumpeter Hornbill	EEP	LC
40 <i>Cacatua alba</i>	White Cockatoo	EEP	EN
41 <i>Cacatua citrinocristata</i>	Citron-crested Cockatoo	EEP	CR
42 <i>Cacatua haematuropygia</i>	Philippine Cockatoo	EEP	CR
43 <i>Cacatua moluccensis</i>	Moluccan Cockatoo	EEP	VU
44 <i>Cacatua sulphurea ssp.</i>	Yellow-crested cockatoo	EEP	CR
45 <i>Callimico goeldii</i>	Goeldi's Monkey	EEP	VU
46 <i>Caloenas nicobarica</i>	Nicobar Pigeon	EEP	NT
47 <i>Capra falconeri hepteneri</i>	Turkmenian Markhor	EEP	NT
48 <i>Casuaris casuaris</i>	Southern Cassowary	ESB	LC
49 <i>Cebuella pygmaea</i>	Pygmy Marmoset	EEP	LC
50 <i>Ceratogymna atrata</i>	Black-casqued Hornbill	EEP	LC
51 <i>Ceratotherium simum simum</i>	Southern White Rhinoceros	ISB	NT
52 <i>Cercopithecus diana</i>	Diana Monkey	EEP	VU
53 <i>Cercocebus torquatus</i>	Cherry-crowned Mangabey	EEP	EN
54 <i>Cercopithecus neglectus</i>	De Brazza's Monkey	EEP	LC

SPECIES	COMMON NAME	PROGRAMME	IUCN RED LIST STATUS
55 <i>Chelodina mccordii</i>	Roti Island Snake-necked Turtle	EEP	CR
56 <i>Chilabothrus anguliger</i>	Cuban Boa	ESB	NT
57 <i>Choeropsis liberiensis</i>	Pygmy Hippopotamus	EEP	EN
58 <i>Choloepus didactylus</i>	Linnaeus's Two-toed Sloth	ESB	LC
59 <i>Chrysocyon brachyurus</i>	Maned Wolf	EEP	NT
60 <i>Cicinnurus regius</i>	King Bird-of-Paradise	EEP	LC
61 <i>Ciconia abdoimii</i>	Abdim's Stork	ESB	LC
62 <i>Coendou prehensilis</i>	Prehensile-tailed Porcupine	ESB	LC
63 <i>Colobus guerezza</i>	Eastern Black-and-white Colobus	EEP	LC
64 <i>Copsychus malabaricus</i>	White-rumped Shama	EEP	LC
65 <i>Crocuta crocuta</i>	Spotted Hyena	EEP	LC
66 <i>Cryptoprocta ferox</i>	Fossa	EEP	VU
67 <i>Cuon alpinus</i>	Dhole	EEP	EN
68 <i>Cyanerpes cyaneus</i>	Red-legged Honeycreeper	EEP	LC
69 <i>Dasyprocta azarae</i>	Azara's Agouti	ESB	DD
70 <i>Dendrolagus goodfellowi</i>	Goodfellow's Tree Kangaroo	EEP	EN
71 <i>Elephas maximus</i>	Asian Elephant	EEP	EN
72 <i>Ephippiorhynchus senegalensis</i>	Saddle-billed Stork	ESB	LC
73 <i>Equus grevyi</i>	Grevy's Zebra	EEP	EN
74 <i>Eudyptes moselyi</i>	Northern Rockhopper	EEP	EN
75 <i>Galago senegalensis</i>	Northern Galago	EEP	LC
76 <i>Gallicolumba crinigera</i>	Mindanao Bleeding-heart	EEP	VU
77 <i>Gallicolumba keayi</i>	Negros Bleeding-heart	EEP	CR
78 <i>Gallicolumba luzonica</i>	Luzon Bleeding-heart	EEP	NT
79 <i>Garrulax bicolor</i>	Sumatran Laughingthrush	EEP	EN
80 <i>Gavialis gangeticus</i>	Indian Gharial	ESB	CR
81 <i>Geochelone elegans</i>	Indian Star Tortoise	EEP	VU
82 <i>Geochelone platynota</i>	Burmese Star Tortoise	EEP	CR
83 <i>Geronticus eremita</i>	Northern Bald Ibis (Waldrapp)	EEP	EN
84 <i>Giraffa camelopardalis</i>	Giraffe	EEP	VU
85 <i>Goura cristata</i>	Western Crowned Pigeon	EEP	VU
86 <i>Goura sclaterii</i>	Sclater's Crowned Pigeon	EEP	NT
87 <i>Goura victoria</i>	Victoria Crowned Pigeon	EEP	NT
88 <i>Gracula spp.</i>	Hill Myna complex	EEP	LC
89 <i>Guaruba guarouba</i>	Golden Parakeet	EEP	VU
90 <i>Gubernatrix cristata</i>	Yellow Cardinal	EEP	EN
91 <i>Gyps africanus</i>	African White-backed Vulture	EEP	CR
92 <i>Helarctos malayanus</i>	Sun Bear	SSMP and EEP	VU
93 <i>Heloderma horridum exasperatum</i>	Mexican Beaded Lizard	EEP	LC
94 <i>Heloderma suspectum</i>	Gila Monster	EEP	NT
95 <i>Heosemys spinosa</i>	Spiny Hill Turtle	EEP	EN
96 <i>Hyaena hyaena</i>	Striped Hyena	EEP	NT
97 <i>Hylobates lar Lar</i>	Lar (White-handed) Gibbon	EEP	EN
98 <i>Hylobates pileatus</i>	Pileated Gibbon	EEP	EN
99 <i>Irena puella</i>	Asian Fairy-Bluebird	EEP	LC
100 <i>Larosterna inca</i>	Inca Tern	EEP	LC
101 <i>Lemur catta</i>	Ring-tailed Lemur	EEP	EN
102 <i>Leontopithecus chrysomelas</i>	Golden-headed Lion Tamarin	EEP	EN
103 <i>Leontopithecus rosalia</i>	Golden Lion Tamarin	EEP	EN
104 <i>Leptoptilos crumeniferus</i>	Marabou Stork	ESB	LC
105 <i>Leptoptilos javanicus</i>	Lesser Adjutant	ESB	VU
106 <i>Leucopsars rotschildi</i>	Bali Myna	EEP	CR
107 <i>Liasis mackloti savuensis</i>	Savu Python	ESB	LC
108 <i>Lophura edwardsi</i>	Vietnam Pheasant	EEP	CR

SPECIES	COMMON NAME	PROGRAMME	IUCN RED LIST STATUS
109 <i>Lorius domicella</i>	Purple-naped Lory	ESB	EN
110 <i>Lorius garrulus</i>	Chattering Lory	ESB	VU
111 <i>Lycaon pictus</i>	Painted Dog	EEP	EN
112 <i>Macaca silenus</i>	Lion-tailed Macaque	EEP	EN
113 <i>Macropus giganteus</i>	Eastern Grey Kangaroo	EEP	LC
114 <i>Malacochersus tornieri</i>	Pancake Tortoise	EEP	CR
115 <i>Manis javanica</i>	Sunda Pangolin	SSMP	CR
116 <i>Mauremys annamensis</i>	Vietnamese Pond Turtle	EEP	CR
117 <i>Mauremys sinensis</i>	Chinese Stripe-necked Turtle	EEP	CR
118 <i>Melursus ursinus</i>	Sloth Bear	ISB and EEP	VU
119 <i>Mico argentatus</i>	Silvery Marmoset	EEP	LC
120 <i>Musophaga violacea</i>	Violet Turaco	ESB	LC
121 <i>Mycteria ibis</i>	Yellow-billed Stork	ESB	LC
122 <i>Myrmecophaga tridactyla</i>	Giant Anteater	EEP	VU
123 <i>Necrosyrtes monachus</i>	Hooded Vulture	EEP	CR
124 <i>Neofelis nebulosa</i>	Clouded Leopard	EEP	VU
125 <i>Nesoenas mayeri</i>	Pink Pigeon	EEP	VU
126 <i>Nomascus gabriellae</i>	Buff-cheeked Gibbon	EEP	EN
127 <i>Nycticebus coucang</i>	Sunda Slow Loris	EEP	VU
128 <i>Orycteropus afer</i>	Aardvark	EEP	LC
129 <i>Otidiphaps nobilis nobilis</i>	Green-naped Pheasant Pigeon	EEP	LC
130 <i>Otus spp.</i>	Scops Owls	EEP	LC
131 <i>Padra oryzivora</i>	Java Sparrow	EEP	EN
132 <i>Pampusana sanctaerucis</i>	Santa Cruz Ground-dove	EEP	EN
133 <i>Pan troglodytes</i>	Chimpanzee	EEP	EN
134 <i>Panthera leo</i>	African Lion	EEP	CR
135 <i>Panthera leo persica</i>	Asian Lion	EEP	EN
136 <i>Panthera onca</i>	Jaguar	EEP	NT
137 <i>Panthera pardus kotiya</i>	Sri Lankan Leopard	EEP	EN
138 <i>Panthera tigris jacksoni</i>	Malayan Tiger	ISB	CR
139 <i>Pelecanus crispus</i>	Dalmatian Pelican	EEP	VU
140 <i>Pelecanus philippensis</i>	Spot-billed Pelican	EEP	NT
141 <i>Pelecanus rufescens</i>	Pink-backed Pelican	EEP	LC
142 <i>Phloeomys pallidus</i>	Northern Luzon Cloud Rat	ESB	LC
143 <i>Pitta sordida</i>	Hooded Pitta	ESB	LC
144 <i>Platalea minor</i>	Black-faced Spoonbill	JAZA	EN
145 <i>Polyplectron inopinatum</i>	Mountain Peacock-pheasant	ESB	VU
146 <i>Polyplectron malacense</i>	Malay Peacock-pheasant	ESB	VU
147 <i>Polyplectron napoleonis</i>	Palawan Peacock-pheasant	EEP	VU
148 <i>Pongo abelii</i>	Sumatran Orangutan	SSMP	CR
149 <i>Pongo pygmaeus</i>	Bornean Orangutan	SSMP	CR
150 <i>Prionailurus viverrinus</i>	Fishing Cat	EEP	EN
151 <i>Probosciger aterrimus</i>	Palm Cockatoo	EEP	LC

SPECIES	COMMON NAME	PROGRAMME	IUCN RED LIST STATUS
152 <i>Procyon capensis</i>	Rock Hyrax	ESB	LC
153 <i>Pteronutra brasiliensis</i>	Giant Otter	EEP	EN
154 <i>Pterorhinus courtiosi</i>	Blue-crowned Laughingthrush	GSMP	CR
155 <i>Ptilinopus superbus</i>	Eastern Superb Fruit-dove	EEP	LC
156 <i>Pycnanotus zeylanicus</i>	Straw-headed Bulbul	EEP	CR
157 <i>Pygoscelis papua</i>	Gentoo Penguin	ESB	LC
158 <i>Pythecophaga jefferyi</i>	Philippine Eagle	DENR	CR
159 <i>Ramphastos toco</i>	Toco Toucan	ESB	LC
160 <i>Ramphastos tucanus</i>	Red-billed Toucan	ESB	LC
161 <i>Ramphastos vitellinus</i>	Channel-billed toucan	ESB	VU
162 <i>Rhabdotorhinus corrugatus</i>	Wrinkled Hornbill	EEP	EN
163 <i>Rhinoceros unicornes</i>	Indian Rhinoceros	ISB	VU
164 <i>Rhynchotus jubatus</i>	Kagu	EEP	EN
165 <i>Rhyticeros cassidix</i>	Knobbed Hornbill	EEP	VU
166 <i>Rhyticeros plicatus</i>	Papuan Hornbill	EEP	LC
167 <i>Rhyticeros undulatus</i>	Bar-pouched Hornbill	EEP	VU
168 <i>Saguinus imperator</i>	Emperor Tamarin	EEP	LC
169 <i>Saguinus labiatus</i>	Red-bellied Tamarin	EEP	LC
170 <i>Saimiri sciureus</i>	Common Squirrel Monkey	EEP	LC
171 <i>Sarcophilus harrisi</i>	Tasmanian Devil	ASMP & EEP	EN
172 <i>Sarcoramphus papa</i>	King Vulture	ESB	LC
173 <i>Scopius umbretta</i>	Hammerkop	ESB	LC
174 <i>Spheniscus demersus</i>	African Penguin	EEP	EN
175 <i>Spheniscus humboldtii</i>	Humboldt's Penguin	EEP	VU
176 <i>Suricata suricatta</i>	Meerkat	EEP	LC
177 <i>Tamandua tetradactyla</i>	Tamandua	ESB	LC
178 <i>Tapirus indicus</i>	Malayan Tapir	ISB	EN
179 <i>Tapirus terrestris</i>	Lowland Tapir	EEP	VU
180 <i>Tauraco erythralophus</i>	Red-crested Turaco	ESB	LC
181 <i>Tockus deckeni</i>	Von Der Decken's Hornbill	EEP	LC
182 <i>Tomistoma schlegellii</i>	False Gharial	ESB	EN
183 <i>Trachypithecus auratus</i>	Javan Langur	EEP	VU
184 <i>Trachypithecus francoisi</i>	Francois' Langur	ASMP	EN
185 <i>Tragelaphus angasii</i>	Lowland Nyala	ASMP	LC
186 <i>Tragelaphus euryceros isaaci</i>	Eastern Bongo	EEP	CR
187 <i>Trichechus manatus</i>	Caribbean Manatee	EEP	VU
188 <i>Varanus komodoensis</i>	Komodo Dragon	EEP	VU
189 <i>Varecia rubra</i>	Red Ruffed Lemur	EEP	CR
190 <i>Varecia variegata</i>	Black-and-white Ruffed Lemur	EEP	CR
191 <i>Vulpes zerda</i>	Fennec Fox	EEP	LC
192 <i>Vultur gryphus</i>	Andean Condor	EEP	VU
193 <i>Zenaidura macroura</i>	Socorro Dove	EEP	EW

ABBREVIATIONS USED

PROGRAMME

ASMP – Australasian Species Management Program
 CWCA – China Wildlife Conservation Association
 EEP – EAZA (European Association of Zoos and Aquariums) Ex-situ Programme
 ESB – European Studbook
 DENR – Department of Environment and Natural Resources (Philippines)
 GSMP – Global Species Management Plan
 ISB – International Studbook
 SSMP – SEAZA (Southeast Asian Zoos and Aquariums) Species Management Programme
 JAZA – Japanese Association of Zoos and Aquariums

IUCN RED LIST STATUS

CR – Critically Endangered
 EN – Endangered
 VU – Vulnerable
 NT – Near Threatened
 LC – Least Concern
 EW – Extinct In The Wild

Awards & Accreditations

Awards

Global Water Awards 2023

- Water Reuse Project of the Year – Distinction
- Finalist for Outstanding Attraction Experience – Mandai Wildlife Reserve
- Finalist for Outstanding Business Innovation – Mandai Wildlife Reserve
- Finalist for Outstanding Employer – Mandai Wildlife Group

Hashtag Asia Awards 2023

- Gold in Best Social Media Campaign: WeChat – Singles Day Promotion on WeChat Mini Program

iF Design 2023

- iF Design Award – Ranger Buddies Web Application

Marketing Excellence Awards 2023

- Gold for Excellence in Event Marketing – A Flight to Remember Campaign, Jurong Bird Park
- Silver for Excellence in Event Marketing – Festive Wild-erland: A Black & White Celebration Campaign, Mandai Wildlife Group

Outstanding Community Partnership Award

- Outstanding Community Partnership Award – Mr Mohamed Yusoff

Singapore Media Marketing Awards 2023

- Silver for Best use of Integrated Media – Take Off to Paradise, Bird Paradise
- Bronze for Best Brand Engagement – Happy ZOObilee, Singapore Zoo

Singapore Tourism Awards 2023

- Outstanding Achievement in Sustainability – Mandai Wildlife Group
- Finalist for Outstanding Attraction Experience – Mandai Wildlife Reserve
- Finalist for Outstanding Business Innovation – Mandai Wildlife Reserve
- Finalist for Outstanding Employer – Mandai Wildlife Group

The Excellent Service Awards (EXSA) 2023 by Association of Singapore Attractions

- EXSA SuperStar Award – S A Suresh, Assistant Manager, Park Operations, River Wonders
- 47 Star Awards recipients
- 82 Gold Awards recipients
- 47 Silver Awards recipients

TripAdvisor Travelers' Choice 2023

- Travelers' Choice – Singapore Zoo

Universal Design Excellence Award 2023

- Bird Paradise & Mandai Wildlife West

Accreditations

Global Sustainable Tourism Council (GSTC) – Destination

- Mandai Wildlife Reserve

NParks Landscape Excellence Assessment Framework (LEAF) Platinum

- Bird Paradise
- Mandai Wildlife WEST

Mandai
WILDLIFE GROUP

www.mandai.com