

# **WILDLIFE RESERVES SINGAPORE**

YEARBOOK 2014-15



## ABOUT WILDLIFE RESERVES SINGAPORE

Wildlife Reserves Singapore (WRS) is the holding company of the award-winning attractions Jurong Bird Park, Night Safari, Singapore Zoo and River Safari. WRS is dedicated to the management of world-class leisure attractions that foster conservation and research, while educating visitors about animals and their habitats.

A self-funded organisation, WRS also collaborates with various partners, organisations and institutions aimed at protecting local and global biodiversity. Each year, Jurong Bird Park welcomes over 850,000 visitors, Night Safari 1.1 million, Singapore Zoo 1.7 million and River Safari 1 million.



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## CHAIRMAN'S MESSAGE

In FY2014/15, we continued to deepen and enhance our contributions to wildlife preservation at Wildlife Reserves Singapore. Celebrating the 20th anniversary of Night Safari was a major highlight of the year. It was especially meaningful for us to have former Prime Minister Goh Chok Tong, now Emeritus Senior Minister, as our guest-of-honour at the park's birthday party on 23 May 2014, because he had officiated at the park's opening two decades ago. The park has won many admirers around the world, winning accolades along the way, including 11 awards in the STB Best Attraction Visitor Experience category.

Although it makes natural good sense to view zoo animals at night in a place like Singapore, since 90 per cent of tropical mammals (excluding primates) are nocturnal, Night Safari could sustain its success in the world of wildlife attractions only with the added application of expertise and ingenuity to leverage and maximise a blessing of nature. Singapore's position just one degree north of the Equator gives regular sunset times and cool, mostly dry nights, hence making it an ideal geographical location for a night zoo.

The world's first nocturnal park – and still one of the very few – is a symbol of some of the core aspirations of Wildlife Reserves Singapore. The spirit of always seeking to renew and to reinvent ourselves is expressed in our other park innovations such as River Safari, the region's first river-themed park, as well as the new attractions to be unveiled in the future. The capacity to think and to act out of the box, in presenting the best of nature under the cover of darkness, is emblematic of our constant effort to push the boundaries of protecting the planet's biodiversity and promoting conservation awareness and appreciation.

Speaking of pushing boundaries, our launch of the River Safari Cruise in August 2014 literally reached into new territory. We have expanded our interaction with nature into a new space in the waters of the surrounding Upper Seletar Reservoir at Mandai. The 15-minute boat ride offers

guests views of the Singapore Zoo and River Safari from the water, including sightings of elephants, rhinos and giraffes. They can also catch sight of wild animals such as white-bellied sea eagles, herons, kingfishers and water monitor lizards. This reservoir's location highlights a few aspects of WRS' parks and their connections with Singapore's relationship with nature. The parks' setting in one of Singapore's largest water catchment areas reminds us of the island's close ties with water and its intensive adaptations and adjustments to reach self-sufficiency in water – all this while sustaining enough wilderness in this highly urbanised country to still attract an increasing diversity of wildlife.

Our animal stars continued to occupy us as we worked to create connection between our guests and nature through these wonderful wildlife ambassadors. Even closer observation of our River Safari animal stars, the giant pandas Kai Kai and Jia Jia, started this year with the beginning of our "panda baby watch" at River Safari. From October 2014, we started with climate control to help simulate the seasons in the giant panda's native home, to be followed by further stimulation and monitoring in April 2015, the mating season in spring. As we baby watch, the Zoology and Veterinary staff gain more knowledge in caring for these global symbols of conservation. Kai Kai and Jia Jia are now brought even closer to our guests with a special "Panda Rise and Shine" tour that gives access to the back-of-house area with hands-on experience in breakfast preparations for the well-loved bears.

Meanwhile, the new arrivals that we did welcome included a pangolin, Asiatic lions and giant river otters and a Javan langur for the first time, as well as king birds-of-paradise and Bali mynahs. Highlights of our ongoing display enhancements included the revamped Wings of Asia at Jurong Bird Park, a new exhibit in preparation for the arrival of the koalas from Australia to mark 50 years of bilateral relations between Australia and Singapore, and the upgraded Gibbon Islands, together with a new sheltered walkway from the Singapore Zoo's main entrance to Ah Meng restaurant, to further improve the guest experience.

Our support for conservation was well-sustained, with 18 projects regionally and many more closer to home. We continued to back, and invest in, conservation of endangered species from the Bali mynah to the Tonkin snub-nosed monkey in Vietnam. On the domestic front, our projects aim to protect vital endemic species such as the Singapore freshwater crab. In the global conservation effort, we also need everyone's help. This year, our two signature public awareness campaigns took the issue by the horns, as it were, with the "The Hornest Truth" aimed at combating the poaching of rhinos and the "You Buy They Die" on the illegal wildlife trade.

We substantially enhanced guest experience by improving our F&B offerings with new outlets and more varied menus. As for retail, our new merchandise store in Orchard Road is an outreach outpost into the commercial heart of Singapore, while the new online e-store connects with all our patrons across the globe. The launch of a mobile-friendly online ticketing site

improved operation efficiency and is very popular with local visitors, with 35% of them purchasing tickets through this platform

We began our festivities and special promotions this year to mark SG50, the 50th anniversary of Singapore's independence. The Feather Friends SG50 promotion attracted many more friends of Jurong Bird Park who came to enjoy the park with their families and friends. These celebrations will continue well into 2015 and beyond.

All our efforts paid off once again with appreciation from our guests and from industry recognition. WRS bagged four major awards this year, going one level up by earning an Exceptional Achievement award under the Special Recognition category for Night Safari. Night Safari was also recognised for its consistently outstanding efforts in emerging Best Attraction Experience for the third year running since 2012. The Best Attraction Experience award is Night Safari's 12th honour – a truly fitting honour capping the park's 20th anniversary celebrations. Our other awards included the River Safari's "The River is Calling" marketing campaign being awarded Best Innovative Marketing Idea, and the Best Customer Service (Retail) which went to Zoo's retail staff member Divine Real Clemista Santos.

It has been yet another year of solid achievement and enhancement for WRS, with outstanding attainment all-round, thanks to the dedication of our passionate and professional team. I would also like to thank our Board Members, shareholders, members of various committees, honorary consultants, sponsors, donors, volunteers and friends, whose unstinting support has brought us through the past few decades leading up to SG50. We look forward to achieving and contributing much more together with all of you, into the next 50 years.

Chairman  
Wildlife Reserves Singapore





**CLAIRE CHIANG,**  
Chairman  
Wildlife Reserves Singapore,  
Wildlife Researves Singapore  
Conservation Fund

Ms. Claire Chiang, Senior Vice President, Banyan Tree Holdings, is a co-founder of Banyan Tree Hotels & Resorts, and also pioneered the group's retail business in 1996 which has since grown to 60 over retail outlets worldwide.

She serves also as the Chairperson for China Business Development, where she primarily focuses on the acquisition of new management contracts, and an Advisor to the group on Human Capital Development, where she guides key strategic issues in organisational and human capital capability.

Ms. Chiang is also the Chairperson of Banyan Tree Global Foundation, an associate of Banyan Tree Holdings that was established in March 2009 as the sustainability arm of the group. Her role involves directing and guiding the evolving process of the group's commitment to corporate social responsibility and its

mission to "Embrace the Environment, Empower the People".

In April 2009, Ms. Chiang, together with Mr. Ho Kwon Ping, was a joint recipient of the Hospitality Lifetime Achievement Award at the annual China Hotel Investment Summit. The award was presented to honour outstanding individuals for a lifetime of extraordinary leadership, accomplishments and contributions to the hospitality industry.

Ms Chiang serves on numerous public and private Boards and has won national and international awards for her advocacy in social and community issues. She is a member of the Tripartite Committee on Work-Life Strategy led by the Ministry of Manpower, the Chairperson of Employer Alliance and Board member of The Tripartite Alliance for Fair and Progressive Employment Practices (TAFEP) which is a network committed to creating an

enabling work environment to empower work flexibility and engagement.

In July 2014, she was elected as the Chairperson of Executive Committee, National Book Development Council of Singapore. She is a member of advisory board for Crib Pte. Ltd. She serves as the community advisor for Honour Singapore and was appointed by Ministry of Defence (MINDEF) as a member in main ACCORD and the co-chairperson of the ACCORD (Family & Community Council). Most recently in Aug 2014, she was awarded the Public Service Star BBM for her contribution in implementing work-life integration, as part of Singapore's commitment to create fair, responsible and progressive work environment. Meanwhile Ms. Chiang was elected as a Pioneering Member for the Diversity Action Committee to build up the representation of women directors on boards of companies.

## BOARD OF DIRECTORS



**MR PHILIP TAN**

Mr Tan was in the commerce and industry sector for 11 years prior to joining the banking and finance sector. He joined the Overseas Union Bank in 1979, holding various senior positions prior to his retirement in 2002 as Executive Vice President.

He holds a Bachelor of Accountancy from the University of Singapore and a Bachelor of Laws from the University of Wolverhampton, UK. He also holds a post-graduate diploma in Business Administration from the Manchester Business School, UK. He is a Fellow of the Institute of Singapore Chartered Accountants, CPA (Australia), the Association of Chartered Certified Accountants, UK and an Associate of the Chartered Institute of Management, Accountants, UK.

Mr Tan is currently a director of Union (2009) Limited, Alliance Financial Group Berhad and Alliance Bank Malaysia Berhad.

Mr Tan retired from the Board of Wildlife Reserves Singapore, Singapore Zoological Gardens and Jurong Bird Park on 25th August 2014.



**MR CHIA NGIANG HONG**

Mr Chia Ngiang Hong has over 30 years of experience in the real estate industry. He first graduated from the University of Singapore with an Honours Degree in Bachelor of Science (Estate Management) and later obtained his Master in Business Administration with Distinction from the University of Hull, UK.

Mr Chia was with the DBS Group before joining City Developments Limited (CDL) in 1981 where he is currently its Group General Manager.

He has been serving as the Vice President of the Real Estate Developers' Association of Singapore (REDAS) for many terms. He is also a fellow in the Singapore Institute of Surveyors & Valuers (SISV).

Mr Chia has also served as a former Board Member and subsequently as Deputy Chairman of Building and Construction Authority (BCA). He is currently the First Vice President of the Singapore Green Building Council (SGBC). He is a member of the Charity Council, Ministry of Culture, Community and Youth (MCCY) and also a member of the Panel of Assessors for National Council on Problem Gambling (NCPG).

He chairs the Consultative Committee to the Department of Real Estate at National University of Singapore (NUS). He serves as a member of the NUS SDE School Advisory Committee (SAC) as well as a member of the Advisory Panel of the BCA Academy.



**MR KAVIRATNE NIHAL VIJAYA DEVADAS CBE**

Mr. Kaviratne's career with Unilever spanned 40 years in Asia, Europe and Latin America. He now serves as an independent, non-executive Chairman/Director in various companies in India, Singapore and Indonesia. These include StarHub, SATS, DBS Bank, Olam, Akzo Nobel, GSK and TVS.

Half his time is spent on societal work as a Governing Board Member of The Bombay Mothers & Children Welfare Society, and Founder of St. Jude India ChildCare Centres to provide holistic care for needy children suffering from serious diseases. He was the Founder President of the International Wine & Food Society, Bombay Branch, and is a Chevalier du Tastevin.

An Economics graduate from Bombay University, he attended the AMP at Harvard and the AEP at North Western. Cited in the Queen's 2004 New Year Honours List in the UK he was awarded the CBE for services to UK business interests and to sustainable development.

Mr. Kaviratne retired from the Board of Wildlife Reserves Singapore on 10th November 2014.



**MR RAYMUNDO A YU JR**

Mr Yu has 30 years of experience in the financial industry. He is currently Chairman of Asia Pacific at Threadneedle Investments. Before this, he spent 27 years in Merrill Lynch & Co and was the Chairman of the Merrill Lynch group in Asia Pacific. He is the founding chairman of Abilities Beyond Limitations and Expectations (ABLE), a charity aligned to the physically challenged community in Singapore.

He also serves on the Board of Rickmers (RMT), is a member of the Asia Pacific Advisory Committee of Australian Super and a member of the Global Advisory Committee of Bank Julius Baer & Co Ltd.

Mr Yu is also a Board of fellows at the Thunderbird School of Global Management in Glendale, Arizona, U.S.A.

He obtained his degree in Business Administration from Ateneo De Devao University and has an MBA in International Management from the American Graduate School of International Management (Thunderbird).



# BOARD OF DIRECTORS



**MR LIONEL YEO**

Mr Lionel Yeo is the Chief Executive of the Singapore Tourism Board. He was formerly the Dean & CEO of Singapore's Civil Service College, and Deputy Secretary (Development) in the Public Service Division of the Prime Minister's Office.

Lionel has been an officer of the Singapore Administrative Service since 1996. He has previously served in the Ministry of Trade & Industry, the Ministry of Finance, the Ministry of Information and The Arts, and the Ministry of Community Development. Lionel also serves on the boards of the Urban Redevelopment Authority, Sentosa Development Corporation, National Healthcare Group Pte Ltd, Wildlife Reserves Singapore Pte Ltd and on the Board of Governors of Raffles Institution.

He has a BSc in Economics from the London School of Economics and an MBA from the Massachusetts Institute of Technology's Sloan Fellows Program.



**MR LEE MENG TAT**

Mr. Lee Meng Tat is the CEO of Wildlife Reserves Singapore (WRS). Prior to joining WRS, he was the Chief Corporate Development Officer, Food & Beverages of Fraser and Neave Group (F&N) and he sat on the boards of a number of F&N's F&B subsidiaries.

Before returning to F&N (Singapore) in 2009, Mr Lee was on secondment to Asia Pacific Breweries Ltd (APB) where he was APB's Regional Director in China and concurrently held the position of Chief Executive Officer of Heineken-APB (China) Management Services Co., Ltd.

Mr. Lee had held various positions with Singapore Tourism Board, Singapore Economic Development Board, Sembawang Leisure Pte Ltd, and DBS Bank Ltd.

Mr. Lee holds a Bachelor's degree in Mechanical Engineering (National University of Singapore), and an MBA from Imperial College (London), and had completed the Advanced Management Programme at Harvard Business School.

Mr Lee left WRS as CEO and Board Member on 31 March 2015.



**MR KEE TECK KOON**

Mr Kee is currently the Non-Executive Chairman of Changi Airports International Pte. Ltd., and Alexandra Health Fund Ltd. He is also engaged as a Corporate Advisor at Temasek International Advisors Pte Ltd., and holds directorship positions in NTUC Enterprise Co-operative Ltd., NTUC Income insurance Cooperative Ltd., Ascendas Pte Ltd., CapitalLand Ltd., and Raffles Medical Group Ltd.

Prior to Mr Kee's retirement as the Chief Investment Officer of CapitalLand Limited ("CapitaLand") on 1 July 2009, Mr Kee held several senior appointments within the CapitaLand Group.

Between April 2003 and January 2007, he was responsible for overseeing the CapitaLand group's Financial, Commercial and Retail businesses. Prior to that, he was the Managing Director and Chief Executive Officer of The Ascott Limited from November 2000 to April 2003.

Between 1996 and 2000, he was the Managing Director and Chief Executive Officer of Somerset Holdings Limited, and was also an Executive Vice President at Pidemco Land Limited. Prior to that, Mr Kee held senior management appointments with several other organisations. He started his career in 1979 with the Singapore Armed Forces and the Ministry of Defence where he remained until 1991.

Mr Kee holds a Master of Arts in Engineering Science from Oxford University, United Kingdom.

Mr Kee joined the Board of Wildlife Reserves Singapore on 1 May 2015.



**MR SIM HWEE CHER**

Mr Sim Hwee Cher is PwC Singapore's Vice Chairman of Operations and the Head of Audit. He is also a member of the PwC Executive Board for Singapore, China, Hong Kong and Taiwan. He has over 30 years of audit experience and has been actively involved in planning, executing and managing audits of large companies in the manufacturing, real estate, construction, health care, insurance companies and trading industries.

Hwee Cher sits on the council of the Institute of Singapore Chartered Accountants (ISCA), which sets the direction for the Institute's development and oversees its operations as a whole. He is also a Fellow of the Chartered Public Accountants of Australia and the Association of Chartered Certified Accountants of United Kingdom.

Amongst other positions, he also is currently the Secretary General of National Council of Social Service and Community Chest, and member of the NUS School of Accounting Advisory Council.



**MS NEO GIM HUAY**

Ms Neo Gim Huay is the Managing Director of the Enterprise Development Group in Temasek International Pte Ltd. The Enterprise Development Group builds businesses, seeding, growing and nurturing promising enterprises in partnership with the Temasek portfolio of companies and other stakeholders.

Prior to Temasek, Gim Huay was an international management consultant with McKinsey & Co in the United States and Africa. She has also served in the Administrative Service of the Singapore Public Sector, with a focus on scenario planning, finance and international trade.

Gim Huay holds a MBA from Stanford University and a Masters of Mechanical Engineering and Bachelor of Arts from Cambridge University.

She currently sits on the Board of the Singapore National Library.

## COMMITTEE MEMBERS & HONORARY CONSULTANTS

### Expert Committee on Zoonoses

Chairman : Dr Leong Hon Keong  
 Secretary : Dr Charlene Fernandez  
 Members : Dr Ooi Eng Eong  
 Dr Chan Kwai Peng  
 Dr Koh Tse Hsien  
 Mr Lee Meng Tat  
 Dr Cheng Wen-Haur  
 Dr Serena Oh  
 Mr Kumar Pillai

### Animal Welfare and Ethics Committee

Chairman : Prof Leo Tan  
 Secretary : Dr Cheng Wen-Haur  
 Members : Dr Chew Siang Thai  
 Dr Leslie Retnam  
 Dr Tan Hwa Luck  
 Mr Wong Tuan Wah  
 Dr Chris R Shepherd  
 Ms Grace Chua  
 Dr Stephanie Ho  
 Mr Lee Meng Tat

### Honorary Consultants

Dr Tan Hwa Luck  
 Dr Myra Elliott  
 Prof Soon-Chye Ng  
 Dr Koos van den Berg  
 Dr Curry Keoughan  
 Dr Anjulia Thomas  
 Dr Frederic Chua  
 Dr Hsu Li Chieh  
 Dr Chew Huck Chin

### WRSCF Specialist Panel

Dr Shawn Lum (Chairman)  
 Dr Geoffrey Davison  
 Dr Astrid Yeo  
 Dr David Bickford  
 Dr Sonja Luza  
 Dr Leong Tzi Ming  
 Dr Cheng Wen-Haur

## SENIOR MANAGEMENT

Mr Lee Meng Tat  
 Dr Cheng Wen Haur  
 Ms Isabel Cheng  
 Mr Tan Choong Kiak  
 Mr Melvin Tan  
 Mr Andrew De Silva  
 Mr Barry Choong  
 Mr Cham Tud Yinn  
 Mrs Daisy Ling  
 Ms Jean Tan  
 Ms Julie Yeong  
 Mr Kumar Pillai  
 Mr Lee Chin Peng  
 Ms May Lok  
 Mr Raja Segan  
 Dr Sonja Luz  
 Mr Steven Tan  
 Mr Steven Wong  
 Ms Linda Tan  
 Dr Luis Carlos Neves  
 Dr Serena Oh  
 Mr David Lim

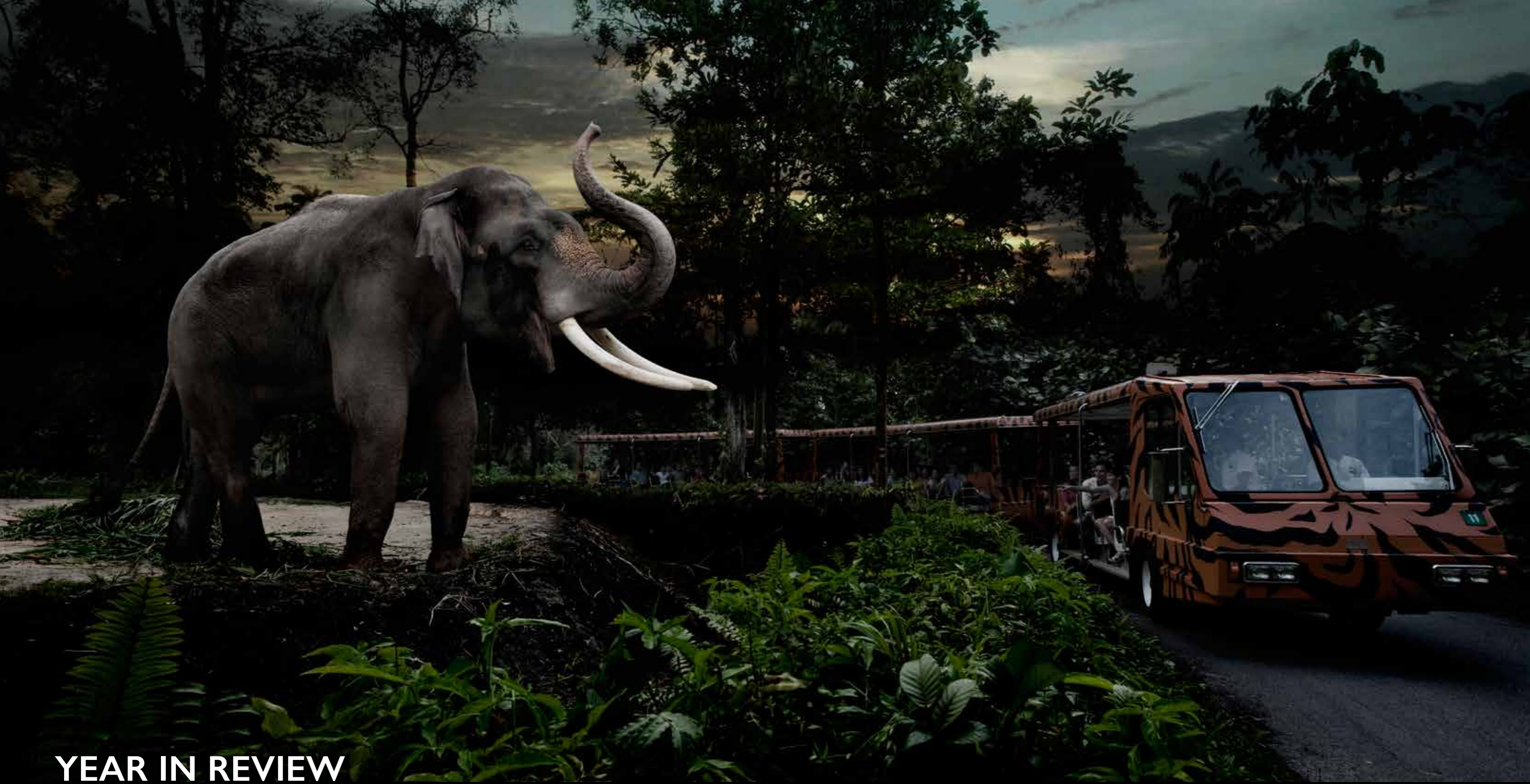
Chief Executive Officer  
 Chief Life Sciences Officer  
 Chief Marketing Officer  
 Chief Financial Officer  
 Acting Chief Operating Officer  
 Director Parks Operations  
 Director Estate Management  
 Director Exhibit Design  
 Director Corporate Services  
 Director Human Resources  
 Director Sales  
 Director Zoology  
 Director IT  
 Director Education  
 Director Animal Presentation  
 Director Conservation & Research  
 Director Food & Beverage  
 Director Finance  
 Assistant Director Retail  
 Assistant Director Avian  
 Assistant Director Veterinary  
 Head Marketing

# ADOPTERS & DONORS

PARK	ADOPTER	ADOPTION	
<b>JURONG BIRD PARK</b>	Advanced Prestige Sdn Bhd	Lesser Bird of Paradise Exhibit	
	Borden Company Pte Ltd	American Bald Eagle, Sue Allen & Eagle Statue	
	Cheng Kim Loke Foundation	Bali Mynah Exhibit	
	Coca-Cola Singapore Beverages Pte Ltd	Pair of Scarlett Macaws from the High Flyers Show, Vega & Petina	
	Digiphoto Entertainment Imaging Pte Ltd	Macaw Island	
	Goodwood Park Hotel Limited	Brahminy Kite, Ronnie II	
	Hong Leong Foundation	24 Flamingoes from the High Flyers Show	
	Lee Foundation Singapore	Penguin Coast	
	MI Limited	Malayan Fish Owl, Tupa	
	Protek Chemicals & Engineering Pte Ltd	White-collared Kingfisher	
	Singtel Mobile Singapore Pte Ltd	Blue-Breasted Kingfisher	
	SPH Foundation Ltd	High Flyers Show	
	Starhub Mobile Pte Ltd	Scarlet Ibis Exhibit	
	State Bank Of India (Singapore)	Flamingo Lake	
	Thai Airways International Public Co. Ltd	Trams at Jurong Bird Park	
	The Shaw Foundation Pte	Fly Pass Macaws from the High Flyers Show	
	Unilever Singapore Pte Ltd	Harris Hawk, Angel	
	<b>NIGHT SAFARI</b>	Apple South Asia Pte Ltd	Leopard Exhibit
		Casa Italia Pte Ltd	Bat-Eared Fox Exhibit
Chemical Industries (Far East) Ltd		Malayan Tiger Viewing Shelter	
Coca-Cola Singapore Beverages Pte Ltd		Asian Golden Cat Exhibit	
Goodwood Park Hotel Limited		Fishing Cat Trail	
Haw Par Healthcare Limited		Malayan Tiger Exhibit	
JTB Pte Ltd		Lion Exhibit	
JTB Pte Ltd		Sambar Deer & Elephant Exhibit	
Khoo Teck Puat Foundation		Fishing Cat Trail	
MI Limited		Giraffe Exhibit	
MI Limited		Porcupine Exhibit	
Martin Storey		Babirusa Habitat	
Mr & Mrs Lim Soo Peng		Red Crowned Cranes	
OCBC Limited		Hippopotamus	
Singapore Management University		Clouded Leopard Exhibit	
Singapore Refining Company Pte Ltd		Marsh Bird Exhibit	
Singtel Mobile Singapore Pte Ltd		Ankole Exhibit	
Standard Chartered Bank		Giant Flying Squirrel Exhibit	
Starhub Mobile Pte Ltd		Serval Segment - Creatures Of The Night Show	
Thai Beverage PLC		Asian Elephant, Chawang	
The Shaw Foundation Pte		Slow Loris Exhibit	
<b>RIVER SAFARI</b>		CapitaLand Limited	Presenting Sponsor & Conservation Donor of Kai Kai & Jia Jia
		Coca-Cola Singapore Beverages Pte Ltd	Scarlet Ibis
	JTB Pte Ltd	Red Panda Exhibit	
	MI Limited	Jewel Tank	
	Mitsubishi Corporation	Jaguar Cave	
	Mitsui & Co. (Asia Pacific) Pte Ltd	Mekong Giant Catfish Exhibit	
	Siemens Pte Ltd	Sponsorship of Control Climate at Giant Panda Forest	
	Singapore Airlines Limited	Official Airline of the Giant Panda Programme	
	Singapore Press Holdings Limited	Amazon Flooded Forest	
	Singtel Mobile Singapore Pte Ltd	Congo Beauties	
	The Shaw Foundation Pte	Manatee Feeding Program	
	Vale International S.A. - Singapore Branch	Jaguarundi Exhibit	

PARK	ADOPTER	ADOPTION
<b>SINGAPORE ZOO</b>	Abbott Laboratories (S) Pte Ltd	Giraffe, Growie
	Australia And New Zealand Banking Group Limited	Australian Outback
	Australian International School Singapore	Orang Utan, Banjo
	Camelot Trustees Limited	Chimpanzee, Asah
	Cheng Kim Loke Foundation	Malayan Tapir Exhibit
	Coca-Cola Singapore Beverages Pte Ltd	White Tiger, Omar
	ED & F Man Asia Pte Ltd	Sugar Cane Plant at Tropical Crops
	Galborg Pte Ltd	Chimpanzee, Nkosi
	General Motors Overseas Dist. Corp. Of Singapore	Agile Gibbon, Gangsa
	Haw Par Corporation Ltd	Leopard Exhibit
	Henkel Singapore Pte Ltd	Chimpanzee, Gangga
	Hong Leong Foundation	Fragile Forest Exhibit
	Industrial And Commercial Bank Of China Limited	Cotton-Top Tamarin Exhibit
	Interbev (Singapore) Limited	Wildlife Healthcare And Research Centre
	Kentucky Fried Chicken Management Pte Ltd	Zebra Exhibit
	Lee Foundation Singapore	Orang Utan, Chomel
	Lee Foundation Singapore	Tropical Crops
	MI Limited	Amhara Stone Village Exhibit
	MI Limited	Orang Utan, Endah
	Malayan Banking Berhad	Stables At Rainforest Kidzworld
	Mitsui & Co. (Asia Pacific) Pte Ltd	Elephants at Work & Play Show
	Mitsui & Co. (Asia Pacific) Pte Ltd	Penguin Exhibit
	Mrs Christina Ong	Orang Utan, Binte
	Mrs Christina Ong	Orang Utan, Saloma
	Ms Isabella Loh	Orang Utan, Ishta
	Ms Kay Kuok	Asian Elephant, Aprila
	OCBC Limited	Wild Animal Carousel
	Pink Apple Pte Ltd	Orang Utan, Ah Meng Junior
	Protek Chemicals & Engineering Pte Ltd	Chimpanzee, Susie
	Renasant Semiconductor Singapore Pte Ltd	Pelican Exhibit
	Sime Darby Insurance Brokers (S) Pte Ltd	Chimpanzee, Jengo
	SPH Foundation Ltd	Polar Bear, Inuka
	SPH Foundation Ltd	Proboscis Monkey Exhibit at SPH Conservation Centre
	Starhub Mobile Pte Ltd	Red Langur Exhibit
	State Bank Of India (Singapore)	Asian Elephant, Gambir
	Thai Airways International Public Co. Ltd	Asian Elephant, Intan
	The Little Skool-House International Pte Ltd	Chimpanzee, Ida
	The Shaw Foundation Pte	The Shaw Foundation Amphitheatre
	United Overseas Bank Limited	Lion Exhibit
	Wuthelam Holdings Pte Ltd	Rabbit Exhibit
		Slow Loris Exhibit





## YEAR IN REVIEW

Night Safari celebrates 20th Anniversary

Launch of River Safari Cruise

'Be A Feather Friend' membership drive as part of SG50 Celebrations

Launch of Wings of Asia

Upgraded Gibbon Island reopens

Inaugural Safari Boo draws huge crowds

Safari Gate opens gateway to wildlife

Launch of Panda Rise and Shine Behind-The-Scenes

Launch of Fishy Business Behind-The-Scenes Tour

Night Safari wins STB BEST Visitor Attraction Experience and Special Recognition Award

River Safari wins STB Most Innovative Marketing Idea for 'The River Is Calling' marketing campaign

Divine Real Clenista wins STB Best Customer Service (Retail) Award



# WILD HAPPENINGS

## 20 YEARS OF FUN IN THE DARK



Night Safari, the world's first zoo for nocturnal animals, marked its 20th anniversary on 23 May 2014 with a celebration – at night, of course – graced by the Guest of Honour Emeritus Senior Minister Goh Chok Tong who also officiated the park opening in 1994.

Night Safari was a wildlife park innovation conceptualised by the same visionaries who created the critically acclaimed Singapore Zoo. Since opening on 26 May 1994, the park provides local residents and tourists an insight into the mysteries of the tropical jungle after sunset, surprising many, many visitors over the years with its wide range of nocturnal animals in natural settings, in a densely urbanised country. The park also added meaning and new dimensions to Singapore's 'nightlife'.



Emeritus Senior Minister Goh Chok Tong as the Guest of Honour at the 20th anniversary of Night Safari.



Emeritus Senior Minister Goh Chok Tong enjoying a spectacular show along tram route during Night Safari's 20th anniversary celebration.



The majestic male white lion at Night Safari. White lions are a result of a gene mutation, which gives rise to the rare pale colour.

The late Dr Ong Swee Law, founder and Executive Chairman of Singapore Zoo, in his project proposal for Night Safari, wrote: "Nothing like the Night Safari can be found anywhere else in the world: it is truly unique." He also highlighted that it makes good sense to view zoo animals at night since 90 per cent of tropical mammals (excluding primates) are nocturnal.

Also, with dusk occurring every day around 7.30pm and cool nights, Singapore is an ideal geographical location for a night zoo.

Today, Night Safari stands at the forefront of wildlife conservation, adopting studied approaches to conservation science, partnership and research. The park opened the world's

first Sunda pangolin exhibit, and has successfully bred this species, which is one of Singapore's few remaining mammals. Other endangered species bred include the Asian lion, Malayan tapir, clouded leopard and Asian elephant.

Over the past 20 years, Night Safari has constantly been renewing and rejuvenating its animal collection, product offerings and facilities to improve visitor experience.

To commemorate the 20th anniversary, the park introduced a pair of white lions and launched two new exhibits featuring Asiatic black bears and Malayan tigers as the finale exhibit at the end of the park's 35-minute tram experience. The celebrations continued with on-ground fringe activities and performances. Admission charges were reduced to \$20 to tie-in with the 20th anniversary weekend, drawing more than double the usual visitorship.



## RIVER SAFARI CRUISE OFFICIAL LAUNCH



WRS further expanded its wildlife offerings beyond the 'conventional park boundaries' with the official launch of the River Safari Cruise in August 2014. Guests can go on a relaxing nature cruise on the waters of the adjoining reservoir and enjoy views of clear blue skies, lush green forests and, more importantly, chance upon wildlife.

The 15-minute cruise plies the scenic Upper Seletar Reservoir – one of Singapore's largest water catchment areas – and provides guests with a rare opportunity to commune with nature in the breathtaking setting of the tropical rainforest and shimmering waterways. Built in 1920, this reservoir holds up to 5,000 million gallons of water and is one of the four reservoirs in Singapore's nature reserves. This man-made lake not only provides drinking water, but is also home to many native species such as the water monitor lizard, long-tailed macaque, heron, kingfisher and white-bellied sea eagle that thrive in or around the reservoir. During the journey, guests will learn about the beautiful forest giants that surround the reservoir and the delicate freshwater habitats.



The River Safari Cruise meanders along the outskirts of Singapore Zoo and Night Safari, giving guests a chance to spot wildlife such as giraffes and rhinos near the edges of these parks. Lucky guests may catch a glimpse of elephants going on daily walks along the water's edge.

This latest boat attraction symbolises WRS' commitment to creating immersive wildlife experiences by refreshing and rejuvenating exhibits and attractions across its four parks. The cruise complements the River Safari experience and the park's focus on increasing awareness of freshwater habitats.



Tranquil views of the Upper Seletar Reservoir, a glimpse of giraffes, rhinos and elephants and a chance to encounter native wildlife - River Safari Cruise offers a wonderful opportunity for guests to connect with nature.

## WINGS OF ASIA' TAKES FLIGHT



The majestic beauty of Southeast Asian birdlife was on display once again at the Jurong Bird Park, with the official opening of the Wings of Asia in January, after a three-month renovation. Guest can marvel at over 500 birds representing 135 Asian species, including 24 threatened ones such as the Bali mynah, Luzon bleeding-heart dove and black-winged starling. These species have been successfully hatched and raised as part of the park's ongoing conservation breeding programmes. Eleven of the 24 threatened species are new additions, with five being displayed for the first time, including the Javan green magpie, rufous-fronted laughing thrush and racquet-tailed parrot.

Previously known as the Southeast Asian Birds Aviary, the 2,600 square-meter exhibit underwent a makeover which included the expansion of smaller aviaries, theming work,

refreshed educational displays for guests to learn about the different species of birds, and an overhaul of its aviary mesh for better viewing.



Mr Desmond Lee, Minister of State for National Development, as Guest of Honour for the opening of Wings of Asia, Jurong Bird Park.



## SAFARI BOO – MERRY NOT SCARY



For the first 'merry not scary' Halloween celebration, River Safari was transformed into a fantasy wonderland where children could visit game stations for tricks or treats, meet friendly mermaids, view river monsters, enjoy close encounters with animals, and take photos with mascots and characters such as Pinocchio and Geppetto. The little ones came in their 'scariest' Halloween costumes to vie for the 'best dressed' title. The event, which offered an evening of wholesome family fun and opportunities to learn about wildlife, drew huge crowds. It is set to become a signature event at River Safari, adding another dimension to enhancing guest experience at the park.



Safari Boo is a wholesome family event with great entertainment and learning opportunities. It was immersive fun, especially for those who attended the event, dressed to the nines.



## CELEBRATION IN THE NATION'S 50TH BIRTHDAY

WRS joined in the leadup to the celebrations in 2015 of SG50, Singapore's 50th anniversary of independence. To mark SG50, the "Be a Feather Friend" promotion at Jurong Bird Park – available throughout 2015 – enabled visitors to become an annual member for unlimited visits through the 12 months for just the price of a normal one-day ticket. With another burst of promotion during the March 2015 school holidays, members' attendance has increased by 237% during the reporting year.

Collaborations with the Singapore Tourism Board's Tourism 50 promotions included the "Be a Panda Researcher", "Fishy Business" and "Spineless and Successful" activities for families during the June 2014 school holidays. WRS' contributions to the slew of SG50 celebrations drew many Singaporean residents and their children to discover – or rediscover – WRS' attractions, together with their relatives and friends from overseas.

'Fishy Business' was one of the back-of-house tours offered during STB's Tourism 50 promotions to encourage Singaporeans to rediscover WRS parks and hopefully become ambassadors in promoting the attractions to their overseas relatives and friends.



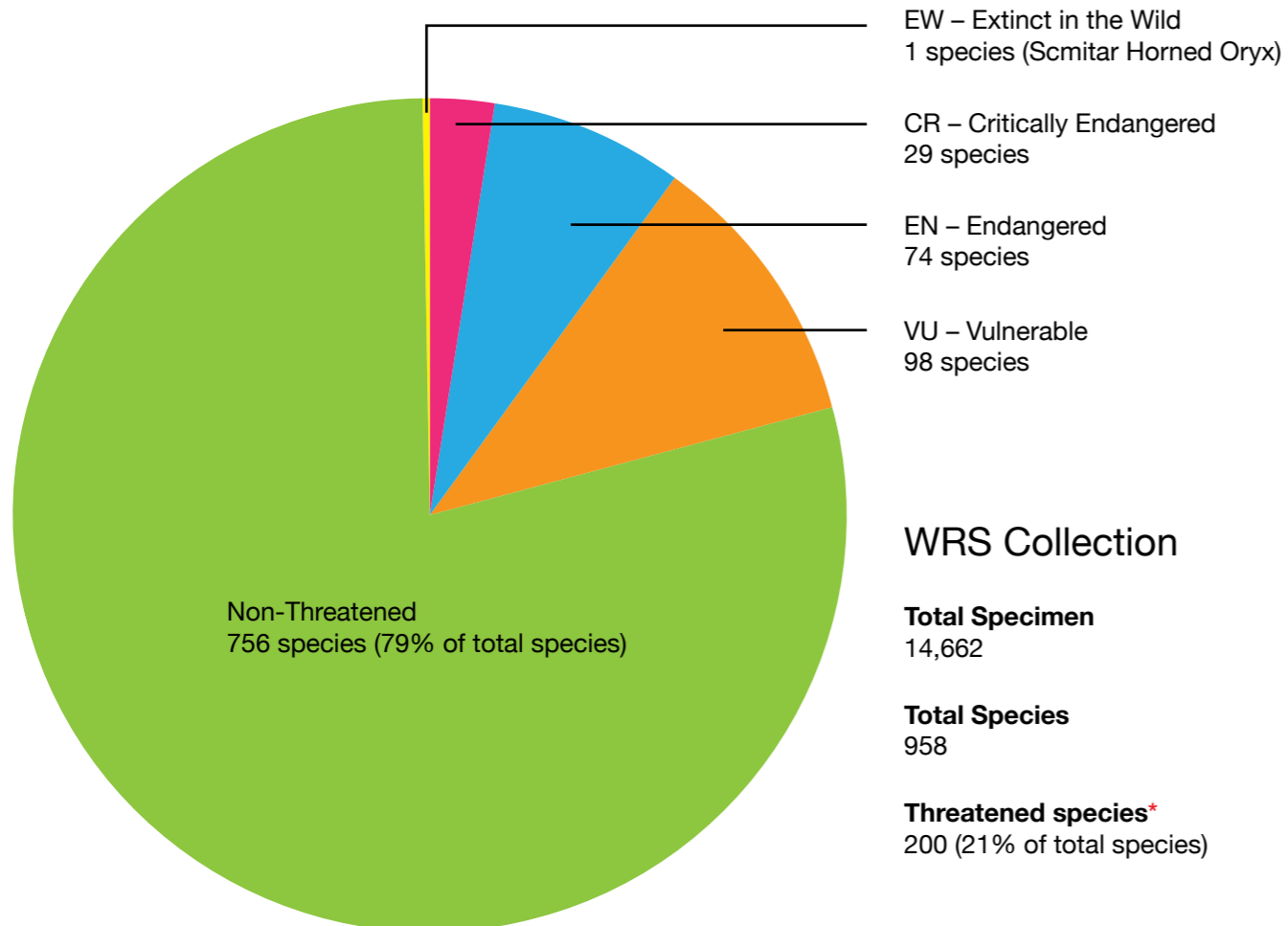


## OUR LIVING COLLECTION



WRS holds 13,625 specimens representing 950 species in its collection, one of the largest among wildlife institutions globally. Of the species held by WRS, 21% are listed as threatened\* on the International Union for Conservation of Nature (IUCN). The Zoology, Avian and Veterinary staff continued to work tirelessly to deepening husbandry and veterinary expertise to care for the living collection. As always, WRS did well in breeding a number of threatened species and contributed towards boosting genetic biodiversity of these species through animal exchange programmes and research collaboration with other wildlife institutions.

*\*threatened species include animals that are extinct in the wild, critically endangered, endangered and vulnerable, classification is based on IUCN Red List of Threatened Species.*



## PANDA BABY WATCH BEGINS

In the wild, giant pandas breed between March and May. Their breeding cycle is triggered by, amongst other factors, a change in temperature and day-length brought about by the changing seasons. To trigger the breeding cycle of Jia Jia, temperature and day-length adjustments were introduced in October in the giant panda facility to simulate the seasonal change to winter with shorter days and a lower temperature. The giant panda keepers kept a close watch on Jia Jia while all at WRS kept their fingers crossed in the hope that she would come into oestrus and eventually produce a giant panda cub. As March approached, Jia Jia's keepers kept a close watch on her for signs of oestrus and readiness to mate.



## NEW ARRIVALS

This year, WRS had a total of 398 successful births, representing 76 species, of which 23 are threatened. A good number of 477 chicks from 97 species were also hatched at Jurong Bird Park.

For WRS, babies are always good news as breeding successes are an indication that the animals are receiving high standards of care since they do not breed when they are in poor physiological state or when the environment is not conducive.

Beyond successful births is a long journey ahead, not just for the parents in raising the babies but also for the keepers who have to pay very close attention to ensure that the young are receiving proper care from their parents, failing which they may have to intervene and hand-raise the babies. Manatee calf 'Canola' at River Safari is one such animal that was successfully hand-raised by the aquarists and the veterinary team. 'Canola' was born on 6 August 14 to 'Eva'. For unknown reasons, Eva abandoned her despite having successfully raised eight offspring in the past. The River Safari team had no choice but to step in to care for Canola. They had to monitor 'Canola' 24 hours for the first few days, bottle feed it every two to three hours during the first months before re-introducing it gradually to its family.

'Carlos' and 'Carmen', the pair of giant river otters in River Safari fared a lot better this year – they managed



RS aquarist Keith bottle-feeding baby manatee 'Canola'. The hard work in caring for her 24/7 paid off and she was finally re-introduced to her mother Eva and the rest of the family.





to raise two pups successfully from their second litter, after having lost their first pup the previous year. River Safari is the first zoological institution in Asia to feature the endangered giant river otter and is proud to have successfully bred and raised the species.

WRS' conservation efforts of native species received a great boost with the birth of yet another female Sunda pangolin at Night Safari on 13 July 2014. One of the few remaining mammalian species in Singapore, the Sunda pangolin is a frequent victim of road accidents as rapid urbanisation on our island state encroaches on its forest habitat. This species is also found in Southeast Asia and is severely threatened by poaching for its scales and meat which are believed to have medicinal value. Apart from ex-situ conservation efforts through breeding the Sunda pangolin, WRS actively engages guests and the community on the plight of this and other threatened species through strong conservation messaging.

Night Safari successfully bred two Asian lions. This endangered big cat is found only in the Gir forest in India. According to the 2014 population census, there are 523 Asian lions in the wild, up from 411 in 2010. This piece of good news shows that with concerted efforts in habitat protection, public education, local community involvement and captive breeding, there is hope in wildlife conservation. WRS certainly wants to contribute in every possible way to this meaningful endeavour, through effective conservation messaging and call to action to stop the consumption and purchase of wildlife products and to reduce wastage of natural resources.

The two giant river otter pups from the second litter have been successfully raised by their parents, Carlos and Carmen. Being endangered, the pups are welcome additions to River Safari.



Look out for the Sunda pangolin when driving along forested areas in Singapore. One of the last remaining mammals on our island state, the Sunda pangolin is a frequent victim of road accidents.



With only 523 Asian lions left in the Gir forest of India, every birth is precious and encouragement for conservationists fighting to save this Asian big cat.



Asian lion cub getting a health check by a vet.



Jurong Bird Park hatched a number of rare feathered jewels such as the king bird-of-paradise, Bali mynahs, grey-winged starlings, palm cockatoos and blue-throated macaws. Four king bird-of-paradise chicks were hand-raised by Avian keepers after the first two weeks to enhance their chance of survival. The hornbill collection also expanded with the arrival first-ever Southern ground hornbill chick, and two Papuan hornbill hatching, after a hiatus of six years.

## ACQUISITIONS

WRS' big cat collection was enhanced through new imports of a pair of white tigers and three lionesses (from Zoo de Cerza, France) for display at Singapore Zoo, and a male Sri Lankan leopard for Leopard Trail at Night Safari.

A two-year-old male red panda was received from Hamilton Zoo, New Zealand through WRS' participation in the Zoos and Aquariums Association (ZAA) Australian Species Management Programme for red pandas. It is hoped that this unrelated male will eventually breed with the existing female red panda at River Safari to enhance the genetic diversity of the captive population of the species.



Young blue-throated macaw



king bird-of-paradise chick



The red panda from Hamilton Zoo is an example of how zoos around the world collaborate to support breeding programmes and ex-situ conservation.

## EXHIBIT ENHANCEMENTS

Singapore Zoo's Gibbon Islands was upgraded with a wider water moat to resolve the issue of water overflowing onto the visitor path when torrential rain pours down. A waterproof membrane was also added to line the moat to prevent leakage. The exhibit, which houses a pair of critically endangered buff-cheeked gibbons, was re-opened in January 2015. A variety of mature trees were planted and vines added to simulate the natural environment of these apes and to allow them to brachiate as they would in the wild.

At Night Safari, construction of the elephant romp was completed in May 2014 to provide soft ground for the elephants when they are taken for walks during the day around Night Safari. This helps to alleviate common foot problems in elephants caused by walking on hard surface.

River Safari's dwarf crocodile exhibit was re-opened in January, after upgrading works to incorporate an aviary to house kingfishers and weaver birds. The beaver exhibit was closed for conversion into a freshwater biodiversity display with colourful fish species, and a variety of animals that can be found along river banks, such as iguanas, tamarins, marmosets and mousedeer.

At Jurong Bird Park, the Wings of Asia was officially re-launched on 21 January 2015 by Mr Desmond Lee, Minister of State for National Development. Previously known as the Southeast Asian Birds Aviary, it went through a three-month makeover to include the expansion of smaller aviaries and refreshed educational displays.



The Wings of Asia displays, amongst many threatened species, the critically endangered Bali mynah.



Male buff-cheeked gibbons are black with two striking buff-coloured cheeks, hence the species' name. Females are buff-coloured throughout.



Night Safari elephants enjoying their walks on soft ground, made possible with the completion of the elephant romp.

## ASSISTANT PROGRAMME FOR SURABAYA ZOO

Following allegations on animal welfare issues in Surabaya Zoo, the Southeast Asian Zoo Association (SEAZA) set up an assistance programme to provide support and WRS chipped in by sending Zoology Specialist Sam

Alagappasamy on a five-day trip to Surabaya Zoo. With two other SEAZA officials, he conducted training on animal husbandry, enrichment and safety protocol to help improve the standard of animal care in the institution.



# SAVING WILDLIFE

This year, WRS continued to take the lead in initiating and managing conservation and research efforts. This is done through planning and collaborating with conservation partners on numerous in-situ projects in Singapore and Southeast Asia, raising awareness on various conservation issues through campaigns and outreach programmes and facilitating capacity-building through conservation strategy planning and training workshops.

In addition to in-situ conservation projects, robust research work are being carried out by WRS staff as well as through collaborative efforts with subject experts to improve animal husbandry and breeding success. Providing the best possible care for the animals and breeding endangered species are WRS' key contribution to ex-situ wildlife conservation.

## REGIONAL PROJECTS SUPPORTED BY WRS

During the reporting period, WRS supported 18 conservation projects, of which 16 are located in Southeast Asia – a region with immensely rich but threatened biodiversity. The map (Fig. 1) shows the location and species of interest for these conservation projects.

Map indicating conservation projects, mostly regional, supported by WRS.



### Tonkin snub-nosed monkeys, Vietnam

WRS continued its ongoing effort since 2009 to support conservation of the critically endangered Tonkin snub-nosed monkey in Khu Ca Area, Ha Giang Province. This helps with monitoring the monkey population, habitat and genetic variability, as well as regular patrolling for illegal human activity through the hiring of four local research assistants to enhance law enforcement.



### The Palawan pangolin, Philippines

The Palawan pangolin is in high demand for international trade of skin, scales and meat. WRS supports the Katala Foundation Inc. to conduct a population survey of the pangolins as well as to study daily behavioural patterns using radio telemetry, to better assess numbers of wild population and provide scientific data to the red-list authorities of IUCN.



### The Philippine cockatoo

The Philippine cockatoo, originally found on all major, and hundreds of smaller, islands within the Philippine archipelago, is now critically endangered mainly due to poaching and loss of lowland habitat. Support from WRS to the Katala Institute for Ecology and Biodiversity Conservation helped the acquisition of a portable brooder and voltage regulator for raising rescued hatchlings. The support also helped with a cockatoo exhibit for conservation education through construction of two observer huts along visitor trails, a cockatoo food garden and information boards to educate visitors on the cockatoos as well as other native species such as porcupines and the Palawan forest turtle.



### The Philippine forest turtle

WRS is supporting a project by the Katala Institute for Ecology and Biodiversity Conservation (KIEBC) to improve the captive breeding facilities for the Philippine or Palawan forest turtle. KIEBC plays a key role in the conservation of the Palawan forest turtle as it holds the only range assurance colony of the species since 2007.



### The Proboscis monkey, Borneo

WRS has been committed to proboscis monkey conservation since 2004, with the first comprehensive statewide survey of the species' population and conservation status in Sabah, East Malaysia. It has been more than 10 years since the first survey was conducted and WRS is now supporting a study to reassess the status and extinction risk of proboscis monkeys in Sabah, East Malaysia and Balikpapan Bay, Kalimantan. The study serves to deepen the understanding of the habitats and food plants of the proboscis monkey, the knowledge of which is key to improving efforts for conservation of the species.

### Hydroelectric dam impact, Borneo

The Bakun hydroelectric dam was implemented in Borneo in 2011. This study aims to create an inventory of species, especially primates and mammals, and to understand the effects of the dam on their ecology. The study also covers the impact of the dam construction on longhouse communities along the Balui River, now Balui Lake.





### Illegal wildlife trade, Bali

WRS is supporting TRAFFIC, the wildlife trade monitoring network, in an in-deeper assessment of illegal wildlife trade in Bali. The assessment will provide better understanding of the issues to help TRAFFIC to be better placed to assist enforcement action towards reducing illegal wildlife trade.



### The Bali mynah

WRS is assisting the Begawan Foundation for the conservation of the critically endangered Bali mynah in a five-year collaborative project to breed and release the species into the wild.

In February 2015, the WRS team joined the team from Begawan Foundation to perform an audit of the species on one of Bali's offshore island, Nusa Penida, where the mynah had been released previously. The WRS team also provided veterinary advice and capacity-building to improve the husbandry of the birds in captivity on mainland Bali.



### Coffee and Gibbons

This project seeks to protect the gibbons of Central Java by helping villagers there to see the connection between the Sokokembang Forest, which is home of these primates, and the value of coffee. Coffee generates income for the villagers who plant the crops them under the natural shade of forest trees. This long-held practice of growing coffee in the wild, also known as shade-grown coffee, helps to preserve the forest and conserves the habitat of the Javan gibbon and other endemic species.



The support from WRS went towards raising awareness on local protection laws of the gibbons in the form of 'ban' boards installed in the forests. A radio campaign and education events were held to raise the awareness of the plight of the Javan gibbon amongst the youth, general community and schools in villages surrounding gibbon habitat, as well as equipping and supporting students in research activities (e.g. bioacoustics study). The support also helped in carrying out a survey on the Javan gibbon to better understand the population and developing a sustainable marketing strategy using coffee and palm sugar to encourage conservation, as well as a fundraising activity. A Javan gibbon information center was also established. This center will also be utilised as a research station and a nursery to cultivate trees for the Javan gibbon habitat rehabilitation.



### The Slow loris, Indonesia

WRS is supporting Yayasan IAR Indonesia to rescue, rehabilitate and conduct controlled and systematic reintroduction and translocation of the slow loris back to its native habitats. The efforts include awareness programmes, reintroducing confiscated slow lorises into the wild, publishing scientific papers and collaborating with local communities, universities, the Indonesian government and other stakeholders to implement conservation initiatives and build capacity of local staff and students.



### Threatened species, Java and Sumatra

WRS is supporting the Cikananga Conservation Breeding Center to maintain and expand captive colonies of four Javanese and one Sumatran endemic species. The species include the Javan warty pig, black-winged starling, Javan green magpie, Rufous-fronted laughing trush and Sumatran laughing trush. This year, WRS' support helped mitigate security issues by enhancing surveillance and safety measures in the breeding complexes.



### The Orang utan, West Kalimantan, Indonesia

WRS is supporting Yayasan IAR Indonesia to rescue, rehabilitate and conduct controlled and systematic reintroduction and translocation of orang utans their native habitats. Education and awareness activities were conducted in an identified human-orang utan conflict area to engage and garner support of the local community in the conservation efforts of these endangered apes.







### Human-elephant conflict, Indonesia

WRS supports a Conservation Response Unit (CRU) in Tangkahan managed by the Veterinary Society for Sumatran Wildlife Conservation, Sumatra. CRU patrols Mount Leuser National Park area to prevent illegal poaching. The monitoring activities and early detection of wild elephants by the CRU team, enables them to help mitigate human-elephant conflict (HEC) by driving wild elephants away from the villages before the elephants were able to venture into the farmland, preventing crop damage. The CRU team also trains the community on wild elephant behaviour and how to approach different conflict situations in an appropriate and effective way.



### Wild elephants, Malaysia

WRS has been supporting the Management & Ecology of Malaysian Elephants (MEME) research project since 2012. This year, WRS funded the use of video camera traps to identify individual elephants, to provide the first data on the social organisation and demographic parameters of Asian elephants in a Southeast Asian rainforest. The result will be used to advise the Malaysian Department of Wildlife and National Parks on suitable elephant conservation strategies.



### River terrapins, Indochina

WRS and Wildlife Conservation Society (WCS) have a joined effort for conservation of endangered turtles in Southeast Asia. This project focusses on four species of turtles, Southern River Terrapin *Batagur affinis* in Cambodia, *Batagur trivittata* from Myanmar, Rote island snake necked turtle *Chelodina mccordi* and the Vietnamese pond turtle *Mauremys annamensis*. WRS supported genetic analysis of 130 critically endangered southern river terrapin in Cambodia, to identify the 20 individuals most suitable to form an assurance colony. Genetic research is ongoing on the Burmese roofed turtle for a similar assurance colony in Myanmar. The Singapore Zoo received the Roti island snake-necked turtle and the Vietnamese pond turtle to establish assurance colonies.



### King cobras, Thailand

WRS is supporting a research project on king cobras in Sakaerat Biosphere reserve, Wang Nam Khiao, Thailand, using intensive radio telemetry to understand their behaviour and spatial ecology. This year, WRS' support went towards local community engagement through village visits, school outreach programmes as well as hosting a king cobra seminar attended by locals and university students.

## PROJECTS SUPPORTED BY WRS CONSERVATION FUND (WRSCF)



### Carnivorous caterpillars

This project by Dr Melissa Whitaker from Harvard University's Museum of Comparative Zoology aims to understand the ecology, life cycle of gossamer-winged butterflies, and to explore factors that determine their diet and symbiotic relationship with ants. Some of the caterpillars of gossamer-winged butterflies produce 'honey dew' to attract ants and drug them to become their body guards. For some species, the caterpillars live in ant nests and trick the ants into feeding and caring for them. They can become predatory and consume the ants eventually.



### Common palm civets

This research project is conducted by N. Sivasothi, Fung Tze Kwan and Xu Weiting from the National University of Singapore (NUS), and Dr Christina Colon from Kingsborough Community College, City University of New York on the ecology of released common palm civets. This civet is commonly found in urban areas of Singapore, and has created human-civet conflict. Each year, some 20 'problem' civets are rescued, sent to WRS, rehabilitated and eventually released. Little is known about the fate of these individuals. The study aims to provide answers to this question. Four civets released in the central catchment area were tracked via radio collars. Findings indicate that human-wildlife conflict can potentially be mitigated by translocation, as civets posing a problem in one area might not necessarily do so in another.





### Reticulated pythons

The reticulated python is a common snake in Singapore, well adapted to the urban environment. While it plays an important role as a predator in controlling the population of the pesky rodents, it is not always welcome by residents. Through Singapore Zoo's 'mark-and-release' programme, pythons captured in housing compounds and industrial warehouses are marked and translocated to secondary forest or wasteland areas away from densely populated areas. Little is known about their movement after that but it appears that they have strong homing instincts as they regularly return to their initial capture site after being released at a different location.

With funding support from WRSCF, Mary-Ruth Low from NUS is using radio- and GPS-telemetry to obtain a greater understanding of the spatial ecology of these snakes. This will generate more effective preventive strategies in keeping snakes from re-entering their initial capture sites near housing and industrial areas, thereby mitigating human-python conflict.



### Coral reefs

In the past two decades, reef restoration, including artificial reef structures deployed on reefs at Singapore's southern offshore islands and coral transplants on various reefs and seawalls have been carried out. To assess the effectiveness of coral reef restoration efforts, a study by Lionel Ng from NUS aims to evaluate if coral transplants have established themselves at Singapore's offshore islands and contributed to larval supplies during the annual mass coral spawning events. This study also aims to establish if installation of artificial reef structures has provided ecosystem services such as habitat creation. Such evaluation is important in helping establish effective reef restoration strategy moving forward.



### Bats

Bats help to pollinate flowers so that fruit can be produced. Insectivorous bats play a key role in keeping the populations of pesky insects in check. Sadly, urbanisation in Singapore has led to a severe drop in bat species diversity. Being hardly charismatic, bats have largely been neglected in studies of urban wildlife ecology.

The research being undertaken by Benjamin Lee from the Durrell Institute of Conservation and Ecology (based at University of Kent) strives to determine the bat species persisting in urban environments and the reasons for their survival. This WRSCF, funded project also aims to assess the effects of major roads on bat diversity and activities, and to find out the habitat value of green roofs for bats in an urban environment.



### Tropical butterflies

Like bats, butterflies are important pollinators of flowers and contribute greatly to fruit production. Unknown to many, Singapore has rich butterfly biodiversity and is home to some 323 known butterfly species. This study by Anuj Jain from NUS maps the hotspots where butterflies are found in Singapore and aims to establish the threats to the reproduction and survival of butterfly species at risk. The effect of different habitats on the home range of butterflies was evaluated through a 'mark-recapture' technique. The evaluation will help to formulate a strategy on habitat enrichment using larval host plants and nectar plants as food sources for caterpillars and adults respectively. The study will quantify the effects of habitat enrichment and develop recommendations for conservation planning.



### Singapore freshwater crabs

This project by Daniel Ng from NUS aims to study various aspects of ecology of the globally critically endangered Singapore freshwater crab (*Johora singaporensis*). This crab species is found only in three small streams in Singapore and nowhere else in the world. It is also one of the world's top 100 most threatened species. Findings will be used to establish new populations by introducing the species to new suitable sites. The most suitable site for translocation has been selected and trials are being conducted for translocation. An ex-situ population is also being established within WRS. Together with National Parks Board and NUS, WRS has formed the Singapore freshwater crab conservation working group, putting together a conservation strategy plan for implementation.



### Babblers

Babblers are found in the understorey layer of forests and they are vulnerable to habitat change. Only four species of babblers are still found in Singapore. This study by Cros Emilie from NUS aims to analyse the genetic diversity of the populations of babblers to determine patterns of connectivity and gene flow and to assess the viability of their populations. Understanding how modifications to their habitat affect them is crucial for implementing appropriate measures for the conservation of these birds to prevent further extinction.





## BIODIVERSITY SURVEYS AT WRS PARKS

2011-2020 has been declared the United Nations Decade on Biodiversity. Joining in the world-wide efforts on understanding and increasing local biodiversity, WRS, with funding support from WRSCF, commenced regular community-based surveys in 2014 to conduct in-situ wildlife conservation, increase biodiversity awareness in Singaporeans, and further the understanding of Singapore fauna, especially how animals may use altered habitats in WRS parks and across Singapore, such as railway corridors. Two surveys on birds, one each on reptiles and amphibians were conducted. These surveys revealed WRS parks to be biodiversity hotspots and home to more than eight locally threatened species. 64 species of birds and 10 species of amphibians were documented around our parks. A faunal survey conducted at the stream in the Night Safari also found four crustacean species and eight fish species.

### CROSS-AGENCY EFFORTS

WRS continues to work closely with other agencies, and to establish new partnerships, to share and expand on knowledge related to areas of human-wildlife encounters. The aim is to increase public awareness and to find new ways to mitigate potential conflict.

#### Singapore pangolin working group

WRS facilitated the formation and followed up on the meetings of the Singapore Pangolin Specialist Group, comprising representatives from National Parks Board, Lee Kong Chian Natural History Museum, NUS, IUCN, WCS, National Institute of Education, Agri-food and Veterinary Authority of Singapore, Nature Society Singapore, Animal Concerns Research and Education Society, The Pangolin Story and Nanyang Technological University. At a meeting in August 2014, it was decided that protocols regarding pangolin husbandry, rescue and rehabilitation and roadkill need to be developed, together with a central database for live and roadkill sighting records as well as rescue and release sites. Further research needs to be developed in areas such as camera tracking for population estimates, behaviour for conservation breeding, genetic diversity and microbiomic composition of Singapore's pangolins.

#### Singapore python working group

WRS, along with National Parks Board, NUS and Animal Concerns Research and Education Society, have formed a Singapore Python Working Group to collaborate on projects and activities for the conservation of reticulated pythons in Singapore. These efforts will take into account developments in aspects such as the use of physical space and shifts in behaviour of both animals and humans, as Singapore's urbanisation continues.



Though high urbanised, Singapore is still blessed with a very diverse variety of wildlife including the long-tailed macaque, spotted wood owl and green crested-lizard, just to name a few.

## IN-PARK RESEARCH PROJECTS

WRS' ongoing in-park research projects this year are as follows:

No.	Project	Researcher
1	Endocrinological studies and reproduction of the Sunda pangolin	Josephine Kawi
2	Diet analysis and nutrition of the Sunda pangolin	Paige Lee Dr Jess Lee
3	Genomic characterisation of the Sunda pangolin	Dr Sonja Luz
4	Phasing of captive Asian elephant management from free to protected contact Monitoring changes in social group dynamics and animal-keeper conflict	Paige Lee Dr Jess Lee
5	Diet analysis and nutrition of the giant panda	Dr Serena Oh
6	Endocrinological studies and reproduction of the giant panda	Josephine Kawi
7	Haematology and serum biochemistry reference values for wild common palm civets ( <i>Paradoxurus hermaphroditus</i> ) of different ages	Dr Anwar Ali
8	Population study on the common palm civet	Dr Anwar Ali
9	Population study on the common palm civet	Razak Jaffar
10	A historical report of surrogacy in Bornean and Sumatran orang utans at the Singapore Zoo	Kumaran Sesshe Roopali Raghavan Dr Jess Lee
11	A case report of novel behaviour in orang utan plant utilisation	Kumaran Sesshe Roopali Raghavan Dr Jess Lee
12	A breeding report of tarsiers at the Night Safari	Cecilia
13	The illegal dugong trade in Indonesia	Paige Lee Dr Vincent Nijman (Oxford Brookes University)
14	Manatee social dynamics and exhibit use at the River Safari	Paige Lee
15	A survey of the colugo population within WRS parks	Paige Lee
16	The ecological, protection and trade status of straw-headed bulbuls in Singapore	Dr Chris Shepherd Dr Jess Lee
17	The genetics of wild-caught milky and painted storks	Dr Luis Neves A-Prof Frank Rheindt (NUS)
18	A survey of avian diversity across WRS parks	Paige Lee
19	Ultrasonography as a technique for sexing reticulated pythons	Dr Abraham Mathew
20	Case report of a pathological tumour in crocodiles	Dr Anwar Ali
21	A survey of herpatofauna diversity across WRS parks	Paige Lee
22	Breeding and ecology of the Singapore freshwater crab	Roopali Raghavan Dr Daniel Ng (NUS)

This year's student projects included the following:

- Diet and physiology of Colobine primates  
This study examines the diet and physiology of Colobine monkeys at Singapore Zoo to deepen knowledge on the digestive process of these primates so as to improve their dietary care.
- Asiatic Black Bears at Night Safari – The effectiveness of enrichment regimes on the bears' activity levels was evaluated, to help improve captive care management.
- Pumas at Singapore Zoo  
The effects of three different types of enrichments were investigated on the behaviour of a pair of pumas, to enhance the welfare of these animals.
- Baboons at Singapore Zoo  
This project by three NTU students studies the relationship between social structure, family profile and food habits related to stress-coping behaviour, aggressiveness and mating in the baboons, to contribute towards future improvement of the social welfare of the baboon troop.



# EDUCATING AND EMPOWERING EVEN MORE

## Grabbing conservation by the horns



For the first time, WRS used campaigns as a platform for conservation education and communication, and two were launched within the reporting year. Collaborating with TRAFFIC Southeast Asia, WRS stage a year-long “You Buy They Die” campaign to increase awareness of the threats faced by animals in the wild. Interpretive information panels in the three parks educated the public on the seriousness of illegal wildlife trade and how their everyday buying decisions can help support conservation. To complement this campaign, a children’s educational trail “Wildlife Rescue Mission” was held to encourage children to role-play as Rescue Rangers to save wildlife from poachers. The trail was very well-received and attracted 4,450 participants over nine days during the March school holidays.

Guests were presented with “The Hornest Truth” at a Rhino conservation campaign between 20 September and 19 October 2014, in conjunction with World Rhino Day. The campaign aimed to inspire visitors to be responsible consumers and not to purchase rhino horns or wildlife products. It featured a photography exhibition, rhino conservation public seminar with guest speakers Jennifer Fox from Thornybush Game Lodge in South Africa, Dr Naomi Doak from TRAFFIC Southeast Asia and Duong Viet Hong from Wildlife Conservation Society Vietnam.



‘Rhinos in Trouble - The Hornest Truth’ and ‘You Buy, They Die’ were campaigns used to educate the public, both adults and children, on the plight of rhinos and to raise awareness of the illegal wildlife trade.



**Wildlife Reserves SINGAPORE** **TRAFFIC**  
the wildlife trade monitoring network

Wildlife photographer Stephen Belcher shared his experiences in photographing the rarest and critically endangered Javan rhino. A nail-cutting booth encouraged guests to clip their nails as a symbolic act to pledge support for rhino conservation, as rhino horns are made of keratin, the same material as human nails and hair. At a Rhino Awareness Booth, young guests were engaged through games such as “Fix A Rhino Horn” and art-and-craft sessions to make air-dried clay rhinos.

## Panda, Amazon tours open new worlds

A special glimpse into life of Kai Kai and Jia Jia was made possible on this exclusive “Panda Rise and Shine” behind-the-scenes tour at River Safari. Guests get close to the two most-loved bears in Singapore before the park opens for the day, through the back-of-house area of the Giant Panda Forest. They watch the keepers serve Kai Kai and Jia Jia their pre-breakfast snack and perform morning checkups before calling up their sleeves to help prepare a panda breakfast. The unique encounter is capped with a delicious Panda Pau breakfast at Mama Panda Restaurant, along with souvenir photos.



Participants of ‘Panda Rise and Shine’ got busy preparing ‘bamboo breakfast’ for Kai Kai and Jia Jia.

Over at the Amazon Flooded Forest, ‘Fishy Business’ behind-the-scenes tour allows visitors to learn how WRS’ dedicated team of aquarists keep their charges in the pink of health before they try their hands at creating enrichment feeding devices for the manatees. They also get to feed the gigantic arapaimas and silver arowanas; the latter, also known as ‘water monkeys’, put up a spectacular display as they leap out of water to snatch the food.



Enthusiastic participants ready to get down to ‘Fishy Business’ to prepare a meal and feed the arapaimas in Flooded Forest, River Safari.



## Engaging Future Movers and Shakers

Recognising that youth can create a strong impact on wildlife conservation as future opinion leaders and corporate decision makers, more resources are being used to plan and execute learning journeys that span over three days to five days, and cover four WRS parks. The participants gained insights into WRS’ in-situ and ex-situ conservation efforts, living collection planning as well as its push for innovation in exhibit design, animal care and guest experience to stay relevant and financially viable.

Collaborative efforts with ITE college, Nanyang Girls High, polytechnics, junior colleges and some secondary schools also yielded learning journeys that not only deepen knowledge but inspire the students to do more for wildlife through volunteering.



Reaching out to youths becomes increasingly important as they can make great impact in wildlife conservation in the near future.



## Zoo animals, pandas inspire pre-schoolers

The pre-school students of Odyssey Global School showed, once again, how a trip to the Singapore Zoo to learn about endangered animals can be so much more than just a learning journey. The children were so inspired that they wanted to do something for wildlife, and so, drew pictures of threatened animals and with the help of their teachers, to produce a book to raise \$650 for the WRS Conservation Fund. This gesture touched many hearts but, most importantly, it was an indication that efforts in educating guests have translated into deep engagement and empowerment to act for wildlife, and that WRS is effectively playing one of the key roles of modern zoos.

As part of WRS' role as a "living classroom" to promote the Chinese language, the River Safari's star pandas Kai Kai and Jia Jia were immortalised in a pre-school book of nursery rhymes to interest pre-schoolers to learn Chinese. This popular reader is now used as a teaching resource in many schools.



Students from Odyssey The Global Preschool were so inspired by what they learned at Singapore Zoo that they decided to produce a book to raise fund for threatened animals.

Motivating pre-schoolers to learn Chinese through giant pandas Kai Kai and Jia Jia is a novel way to promote the language.

## For The Community By The Community

WRS continued to engage the volunteer community and attracted 2,304 volunteers from all walks of life to help spread the conservation message. Together, they devoted some 9120 volunteer hours across four parks and beyond

to project a powerful voice for wildlife. Particularly heartwarming is the steady increase in number of youth volunteers, who are our future leaders and hopefully agents of positive change.



The WRS volunteer community devoted over 9,000 hours in engaging guests at WRS parks and educating them on wildlife conservation.

A total of 2,304 volunteers served at WRS' parks during the reporting year:

VOLUNTEER GROUP	NO.
Docents	194
Conservation Ambassadors	165
Wildlife Buddies	1,204
Work Experience Programme	87
Avian/Zoology Keeper Volunteers	45
Vet Volunteers	30
<b>WRS Events/ Projects Volunteers</b>	
Be a Feather Friend	12
Family Day @ JBP - Docent Recruitment	5
Night Safari 20th Anniversary	8
Safari Boo	32
River Safari Night Opening (during Peak Period, EG. PH & End of Year)	12
Panda Party	79
Zoolympix 2014	270
Rhino Campaign	63
Safari Zoo Run 2015 - Awareness Booth	5
CNY 2015 - Education Awareness Booth	12
WAZA Survey	5
Istana Open House outreach	32
ICCS Coastal Clean Up 2014	4
Vivocity – Biodiversity Outreach	12
Republic Polytechnic - Zoology Observation Work	20
Ngee Ann Polytechnic Open House 2015	8
<b>Total:</b>	<b>2,304</b>





## DELIGHTING OUR GUESTS

It was yet another good year for industry and public recognition for WRS' work in contributing to the quality of life in Singapore and to its attractiveness to visitors. It was an equally successful year in the realm of new offerings for our tourists.

### Brand-new dining concepts

In response to guest feedback, substantial new developments have refreshed the F&B offerings with new outlets to provide more varied menus.

At Singapore Zoo, the impact is immediately obvious as a brand-new bistro welcomes guests right at the entrance. Seating capacity has been increased from 80 to 250, and four dining concepts are on offer, namely Inuka Café, Ah Meng Kitchen, Chawant Bistro and Casa Italia Gelato.

Over at Night Safari, the entrance plaza added new outlets too – Casa Italia Gelato, Safari Sizzles, which offers snacks and drinks, and Night Safari Mart.



The new bistro at Zoo entrance provides higher seating capacity and more varied F&B offerings to enhance guest.

### Enhancing Retail Experience

In the area of retail, WRS expanded its space – in both physical and virtual ways. WRS opened its first high-street satellite shop in Dec 2014 at Centrepont Shopping Centre. The shop offers a wide variety of exclusive wildlife-themed merchandise including apparel, souvenirs, plush toys and collectibles. The shop will also help attract more visitors to WRS' parks.

Shopping at WRS also went online with a retail E-shop launched in November 2014 for guests to extend their park shopping experience, with a user-friendly website, secured payment modes and fast shipping by courier in three to five working days.



WRS expanded its retail footprint beyond its gate with the outlet at Centrepont.

### Official launch of Safari Gate

To enhance accessibility to the three parks in Mandai and back to the city, WRS worked with Duck Tours to launch 'Safari Gate'. The service features hourly departures from the city and on-board entertainment to give guests an insight into each park. This holistic approach focuses not only in bringing guests to the gates of WRS parks but also ensures that they have a free-hassle and comfortable journey back to the city after the visit. As part of the launch, a group of special guests from the Movement for the Intellectually Disabled of Singapore (MINDS) were among the first to experience this premium service, and to enjoy an afternoon at River Safari.



Safari Gate provides 'start to end' accessibility for guests from the city to WRS parks in Mandai and back to city - adding another dimension to improving guest experience.

### WRS ticketing goes online

Apart from upgrading existing exhibits and adding new ones, improving infrastructures, F&B, retail and programme offerings, the reporting year saw WRS used technology and innovation to its highest level to enhance product value, guest experience and operational efficiencies. On 1 April 2014, WRS launched its mobile-friendly online ticketing site with attractive discounts to incentivise guests to purchase tickets online. The platform proved to be very popular with locals, with a 35% take-up rate. The increase in operational efficiencies has greatly reduced the pressure on staff and operation cost, allowing WRS to pass on the savings to guests with up to 30% online discount.



Online ticketing kiosks at the Zoo entrance to ease queues at ticketing counters and improve operational efficiency.

### More appreciation for WRS

Hosted and presented by the Singapore Tourism Board, the Singapore Experience Awards 2014 recognise and reward organisations and individuals in the travel and tourism industry for exemplary delivery in extraordinary experience. WRS bagged four major awards and went one level up by earning an Exceptional Achievement award under the Special Recognition category for Night Safari. Night Safari was recognised for its consistently outstanding efforts in emerging Best Attraction Experience for the third year running since 2012. The Best Attraction Experience award is Night Safari's 12th honour – a signature honour capping the park's 20th anniversary celebrations. Night Safari's Adventurer Tour and Singapore Zoo's Wild Discoverer Tour also emerged finalists in the Best Learning and Travel Experience category. River Safari's "The River is Calling" marketing campaign was awarded Best Innovative Marketing Idea.

At individual level, Singapore Zoo's retail staff member Divine Real Clenista Santos won for Best Customer Service (Retail). For the Best Customer Service (Visitor Attraction) category, two other staff members emerged finalists – Tan Han Qiang from Singapore Zoo and Lim Kuan Loong Bryan from Jurong Bird Park.

This year saw 83 finalists vying for 25 awards. Finalists were nominated by industry players and experts, with winners picked by a panel of judges.

The Excellent Service Award is a national recognition for individuals who deliver quality service in the attractions sector. It is organised by the Association of Singapore Attractions and SPRING Singapore. WRS staff have continued to be recognised for delivering quality service, as a total of 119 staff members won this award, with 12 receiving the Star award, 33 Gold and 74 Silver.

As a testament to WRS' commitment to go the extra mile to cater to families, River Safari was accredited in November 2014 with the Business for Families Mark. This is a national accreditation programme organised by the Ministry of Social and Family Development, and is awarded to an organisation after meeting specific standards relating to the Park's strategy, service, infrastructure and business outcomes.

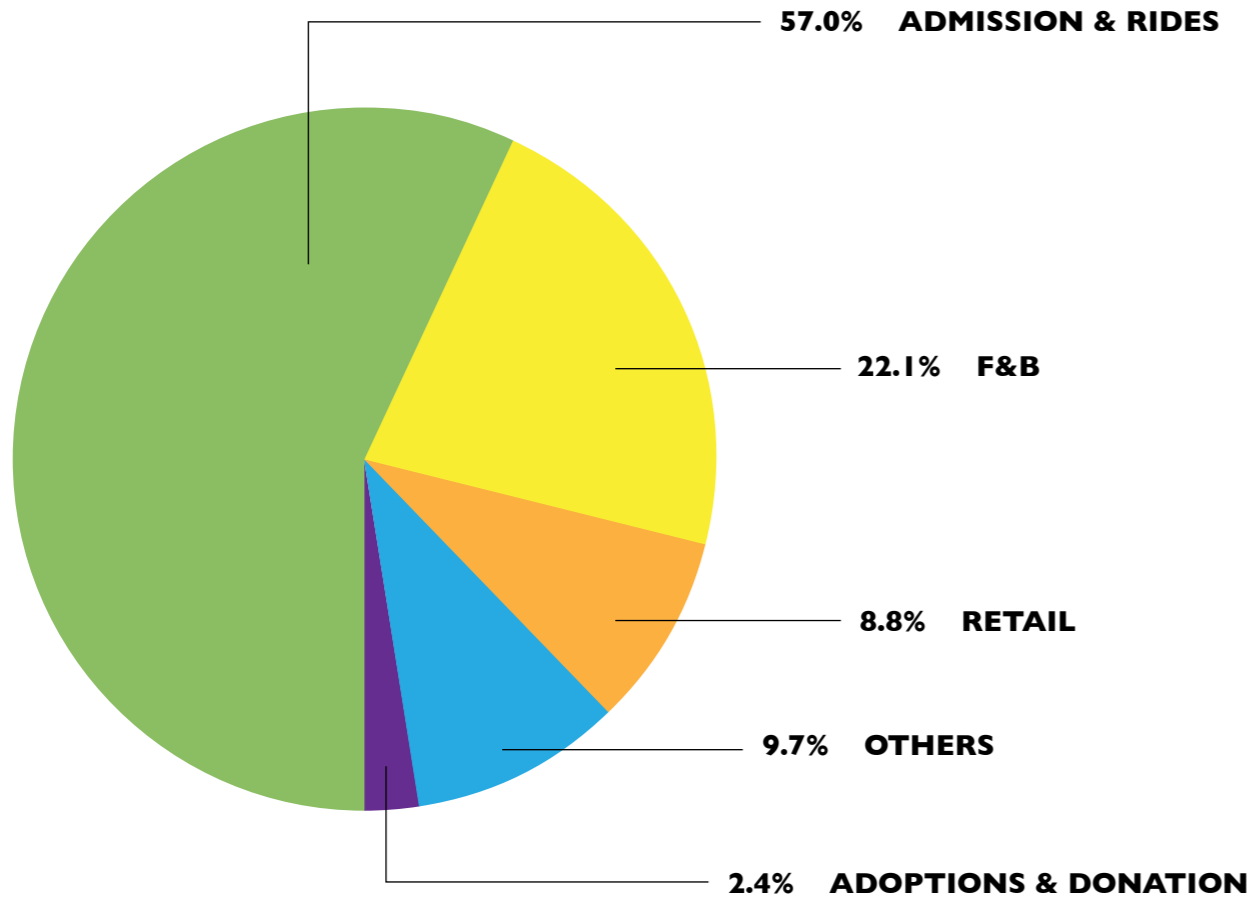


Retail staff member Divine Real Clenista Santos did WRS proud and clinched STB's Best Customer Service (Retail) award. She was also nominated for the same award the previous year.

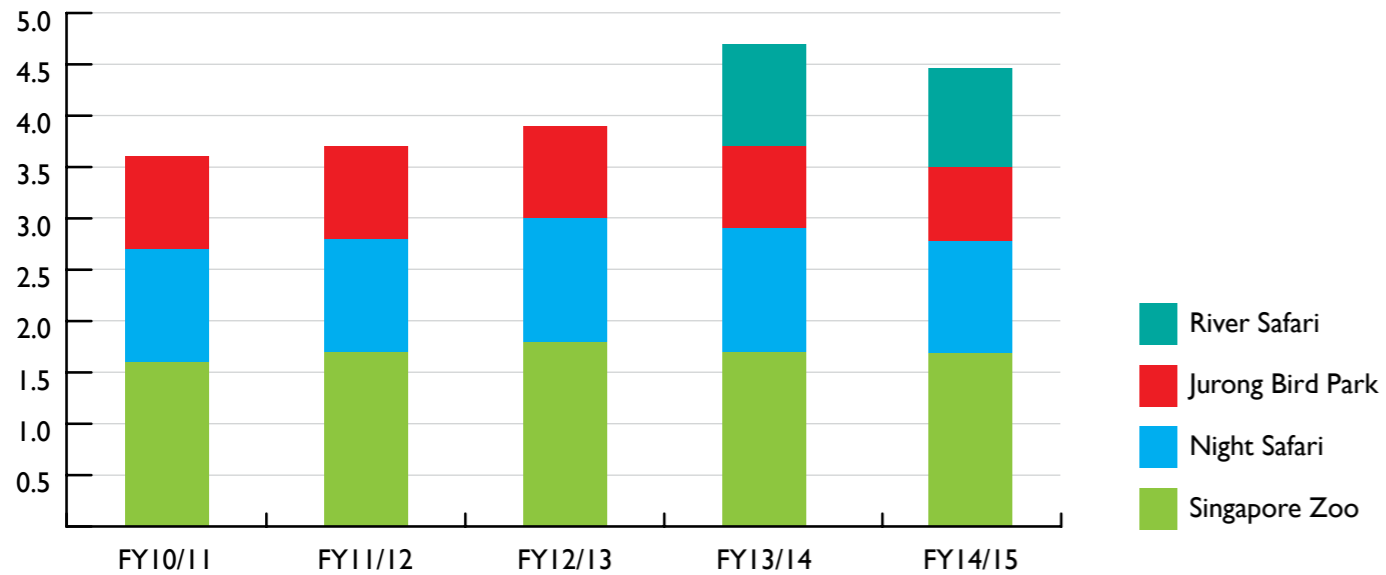


# FINANCIAL HIGHLIGHTS FY14/15

TOTAL REVENUE FY 14/15 \$152,786,047



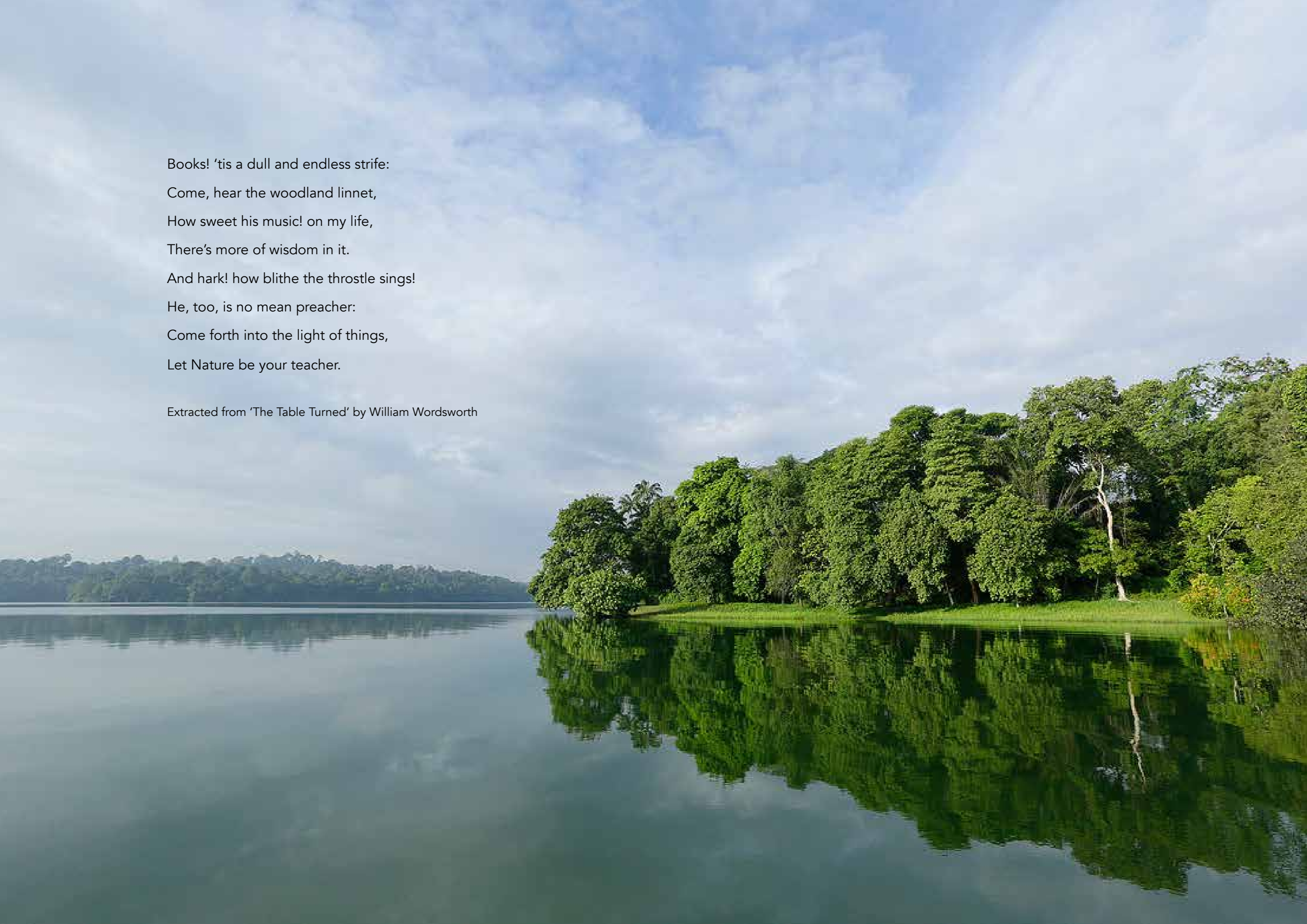
TOTAL VISITORS 4,584,764





Books! 'tis a dull and endless strife:  
Come, hear the woodland linnet,  
How sweet his music! on my life,  
There's more of wisdom in it.  
And hark! how blithe the throstle sings!  
He, too, is no mean preacher:  
Come forth into the light of things,  
Let Nature be your teacher.

Extracted from 'The Table Turned' by William Wordsworth





# YEARBOOK 2014-2015

WILDLIFE RESERVES SINGAPORE

Wildlife Reserves Singapore Group



[www.birdpark.com.sg](http://www.birdpark.com.sg)

[www.nightsafari.com.sg](http://www.nightsafari.com.sg)

[www.riversafari.com.sg](http://www.riversafari.com.sg)

[www.zoo.com.sg](http://www.zoo.com.sg)