NUS National University of Singapore

Lee Kong Chian Natural History Museum

10 YEARS OF LKCNHM

ANNUAL REPORT 2024/25

NATURAL HISTORY MUSEUM

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Head's Message

LKCNHM turned 10 in 2025, and we invited one and all to *Explore with Us* through a series of special events held over the past year to celebrate this important milestone, all while maintaining apace our bread-and-butter activities that have underpinned the Museum's significant growth over the past decade.

This year, we celebrated the fact that the Museum's biodiversity collection—built since the 1800s on the efforts of pioneering naturalists—doubled from around 500,000 specimens to over one million in just 10 years since the opening of LKCNHM. This remarkable growth reflects our active programme of research and discovery with local and regional partners. The collection continues to expand and serve as the foundation for research at the core of LKCNHM, as reflected in the various biodiversity surveys, discoveries and research communications in the past year, which as always, we present highlights of in this Annual Report.

We are treading not only these well-worn paths; a new feature this year is on preliminary paleontological research carried out on our three sauropod dinosaur fossils. In 2025, we also began collaborating with the NUS School of Computing and the NUS Artificial Intelligence Institute on a new interdisciplinary project that leverages our biodiversity collections and expertise to bring the Museum into the area of AI-biodiversity innovations. Both initiatives will enhance and extend LKCNHM's reach across researchers, educators, students and the public alike. So watch these spaces…

Beyond research on physical specimens, our Biodiversity Histories team continues to tell stories of Singapore's natural history and heritage in conjunction with Museum curators, researchers, and educators/communicators, such as through our 10th anniversary commemorative book, *Archipelago of Islands*. Our flagship SIGNIFY project also continues to bear fruit, with a much-anticipated visit to the Muséum national d'Histoire naturelle in Paris. The project's success is now prompting plans for a follow-up project that may include expansion and collaboration with our ASEAN partners.

In education and outreach, LKCNHM continues to punch above its weight, with visitors to our exhibitions and participants of our programme certain to number more than 100,000 in 2025. Many of them would have experienced our 10th anniversary exhibition, *Decade of Discovery*, showcasing new discoveries over the last decade and specimen donations not displayed previously, as well as our earlier exhibition, *The Nature of Things*, a collaboration with the students and graduates of the NUS College of Design and Environment on nature in urban Singapore.

Since opening in 2015, we have gained great momentum in biodiversity research, education and outreach. Our challenge now is to sustain and enhance this momentum. We will achieve this as a team—the LKCNHM staff and students collaborating with and supported by our benefactors and partners within NUS and beyond. Kudos and my heartfelt thanks then to you all—especially the talented and dedicated Museum staff, volunteers, and students—whom I admire and appreciate greatly, and who deserve utmost praise for their untiring professionalism and commitment to the Museum's mission.

Associate Professor Darren Yeo

Head of Lee Kong Chian Natural History Museum

OUR YEAR IN NUMBERS

Academic Year 24/25

Outreach

Total no. of gallery visitors
83,935

Total no. of beneficiaries, charities & community groups
50

Education

Total no. of programmes
266

No. of sponsored programmes
50

Total no. of volunteers
64

Total no. of participants
13,542

Research & Collections

No. of research visitors
103

No. of research activities
(e.g. fieldtrips, conferences, workshops)
38

No. of specimens acquired
8,677

No. of specimens loaned
985

No. of NUS modules taught
13

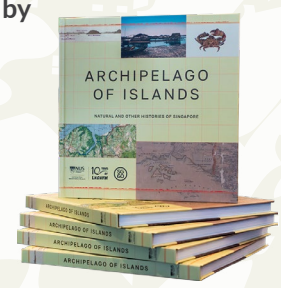
No. of NUS students taught
375

No. of awards and accolades
1

No. of staff publications
103

No. of new species described
58

Other publications by the Museum
(e.g., books)
4



Total no. of articles published in Museum journals

Raffles Bulletin of Zoology
43

Nature in Singapore
136

No. of media appearances
149

MARKING LKCNHM'S 10TH ANNIVERSARY

LKCNHM celebrates 10 years of scientific discovery and natural history

The Lee Kong Chian Natural History Museum proudly marked its 10th anniversary on 6 May 2025, celebrating a decade of excellence in biodiversity research, education, and natural heritage conservation.

We were privileged to welcome Mr Tharman Shanmugaratnam, President of the Republic of Singapore and NUS Chancellor, as our Guest-of-Honour at our event. As part of the celebration, the Museum unveiled a special anniversary exhibition, 'A Decade of Discovery: Stories from the Lee Kong Chian Natural History Museum', and launched our commemorative book, 'Archipelago of Islands: Natural and Other Histories of Singapore' (see page 10).

"Our vision is to be a leader in Southeast Asian biodiversity research, education, and outreach," said Assoc Prof Darren Yeo, Head of LKCNHM. "To this end, we have actively pursued research and discovery with local and regional partners, imparted expertise on biodiversity and conservation, and nurtured awareness and interest in biodiversity, natural heritage and environmental issues."

Prof Aaron Thean, NUS Deputy President (Academic Affairs) and Provost, shared, "As a champion of conservation, the Museum aims to inspire every visitor to take meaningful action. The importance of protecting biodiversity is more crucial than ever—both for a bio-sustainable world and the well-being of humanity."

To learn more about our 10th anniversary programmes and initiatives, click to 'Explore With Us'.

A Decade of Discovery: Stories from the Lee Kong Chian Natural History Museum

Launched on 6 May 2025 during the Museum's 10th anniversary event, 'A Decade of Discovery' is a special exhibition which encapsulates the Museum's origins, its current endeavours, and its visions for the future. Thematically organised around the concept of a field expedition to study biodiversity, this exhibition summarises the Museum's 10 years and features never-before-exhibited specimens from our collections.

A decade of research, expeditions, and scientific discovery is presented through physical specimens as well as digital records, accessible via two interactive portals. While the Museum's overall mission encompasses research from around the globe, the SIGNIFY and Biodiversity of Singapore databases serve as records of the investigations into the rich and distinctive natural heritage of Singapore.

These portals capture research-ready digital information about species that once existed, as well as those that still persist in this archipelago of islands.

Beginning with a trip down memory lane, a wall of photographs and plaques commemorated the work and effort to establish the Museum.

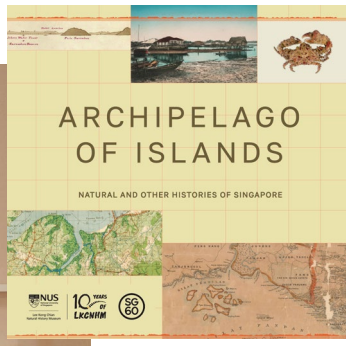
A selection of specimens from various expeditions the Museum has embarked on in collaboration with research institutions in the region and beyond.

> **While awareness and knowledge of mainland Singapore's flora and fauna has increased appreciably in recent years, most of it has focused on the organisms and their immediate environments, with little mention or links to the many 'offshore islands' that have been integral to the broader related natural history and heritage."**
>
> - Assoc Prof Darren Yeo, Head of LKCNHM

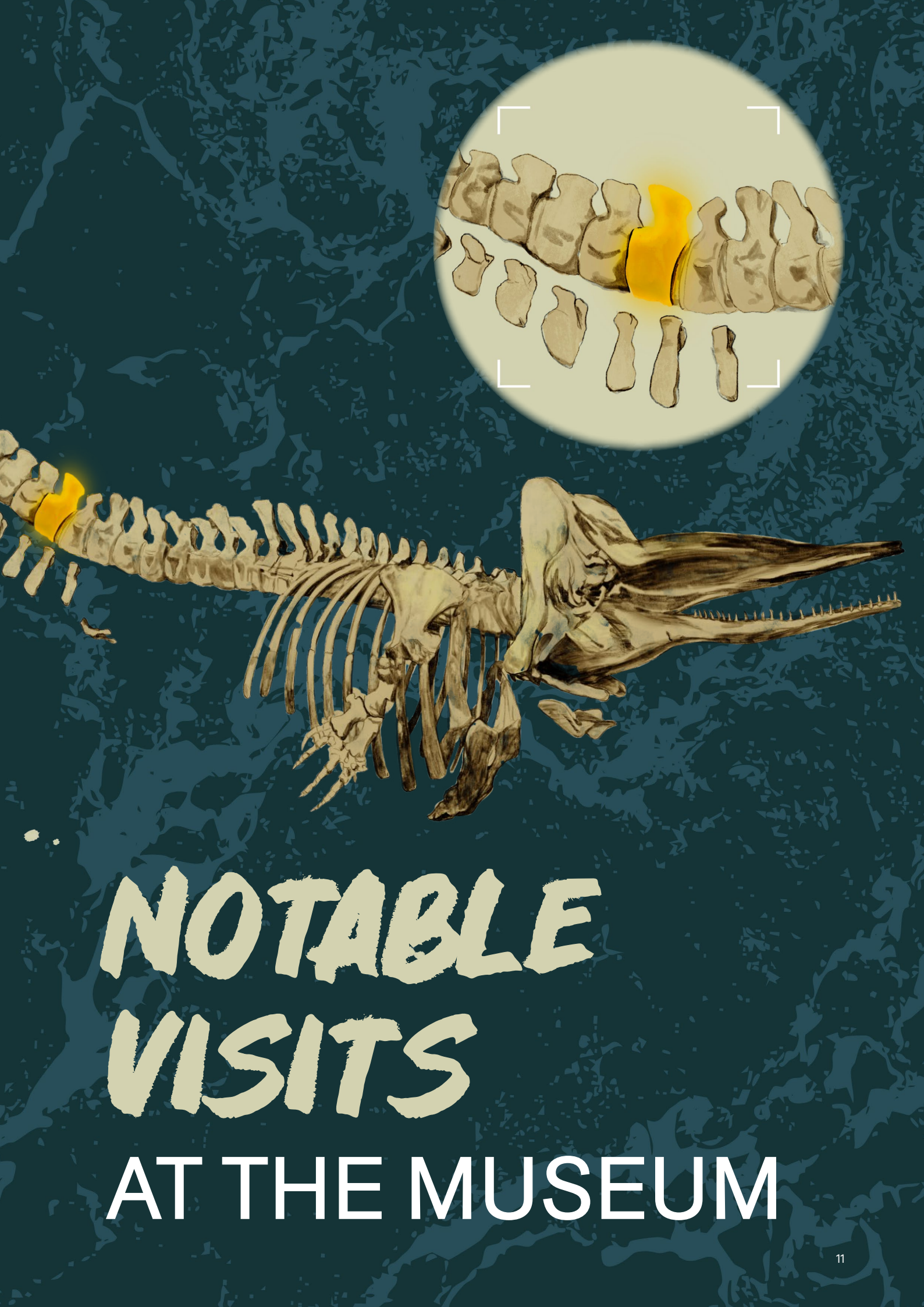
Revisiting Singapore as an archipelago

'Archipelago of Islands: Natural and Other Histories of Singapore' is the Museum's latest book. It was launched on 6 May 2025 as part of the Museum's 10th anniversary event, and in conjunction with Singapore's 60th year of independence. This interdisciplinary book explores the key roles of Singapore's islands as habitats, homes and navigational landmarks, interweaving stories of nature, history, and culture—and offering fresh perspectives on the nation's archipelagic nature.

A key feature of the book is a map that reconstructs all the known islands of pre-independence Singapore. This historical visualisation invites readers to reimagine Singapore's past islandscapes and compare them with the islandscapes of today. The book also draws on the specimens from the Museum's collections, showcasing the biodiversity of Singapore's islands across time. More than a commemorative publication, 'Archipelago of Islands' serves as both a celebration and a timely call to protect Singapore's unique archipelagic natural and cultural heritage.



The book was also selected by President Tharman Shanmugaratnam, President of the Republic of Singapore and NUS Chancellor, as one of his eight recommended reads at NLB Singapore's inaugural Presidential Pop-up Library, which was launched in July 2025.



NOTABLE VISITS AT THE MUSEUM

Visits by external organisations and distinguished guests

Between September 2024 and June 2025, LKCNHM received a diverse range of delegates from various institutions and museums keen to learn more about the Museum, its projects and its Zoological Reference Collection. The Museum also hosted distinguished guests, offering them insightful gallery tours and opportunities to explore potential future collaborations.

Organisation / Group	Date	Distinguished Guest(s) and/or Representatives
Kitakyushu Museum of Natural History & Human History	18 Sep 2024	
National Museum of Nature and Science, Tokyo	29 Oct 2024	
European Union (EU) Cultural Attachés	21 Nov 2024	Representatives from: • Royal Norwegian Embassy • Embassy of Argentina • Embassy of Poland • Embassy of Spain • Embassy of Switzerland • Embassy of Ireland • Embassy of Romania • Embassy of Hungary
Korea Heritage Service	5 Dec 2024	Biodiversity Division
Embassy of the Philippines	24 Apr 2025	Ambassador Medardo G Macaraig and representatives
Universiti Malaysia Sarawak (UNIMAS)	20 May 2025	Prof Dr Ahmad Hata Rasit, Vice Chancellor of UNIMAS and delegation
Emeritus Prof Lee Chuen Neng	6 Jun 2025	Emeritus Prof Lee Chuen Neng
Manchester Museum	9 Jun 2025	Ms Esme Ward, Director of Manchester Museum
National Parks Board	10 Jun 2025	Dr Charles Cannon, Director of Forest & Tree Research
Family of Prof Chuang Shou Hwa	11 Jun 2025	Family of Prof Chuang Shou Hwa, former Head of Zoology Department, University of Singapore, from 1971 to 1977
National University of Singapore	12 Jun 2025	Prof Tan Eng Chye, President of National University of Singapore

On 11 June 2025, the Museum hosted Prof Chuang Shou Hwa's family where they viewed his specimens and shared fond memories and anecdotes of Prof Chuang.

Ambassador of Philippines to Singapore, His Excellency Mr Medardo Macaraig, Vice Consul Ms Renee Gayle Chua, and Cultural Officer Ms Rosellie Bantay looking at specimens in our Wet Collection.

Studying Prince, Apollonia and Twinky: a special visit by an evolutionary palaeobiologist

Dr Emanuel Tschopp, a Swiss evolutionary palaeobiologist from Freie Universität Berlin and LKCNHM's Honorary Research Affiliate, visited the Museum in May to study our three sauropod dinosaurs—Prince, Apollonia and Twinky. They were discovered at Dana Quarry, Wyoming, within the Morrison Formation of the Jurassic period. Typically, sauropods are found in fragments, making identification difficult. Twinky, the smallest of the trio, is especially rare as it preserves almost the entire vertebral column, offering vital clues for species classification. On 13 May 2025, Dr Tschopp also presented a public talk, 'Digital Dinosaurs', as part of our 10th anniversary celebrations, showing how digital technologies help examine fossils and reconstruct dinosaur lives.

RESEARCH & COLLECTIONS

International collaboration reveals new deep-sea species

The Museum, in collaboration with Dr Conni Sidabalok from the Research Center for Biosystematics & Evolution, National Research and Innovation Agency (Indonesia), and Dr Nguyen Thanh Son of VNU University of Science (Vietnam), described a new species of deep-sea giant isopod, *Bathynomus vaderi*, also known as the 'Darth Vader' isopod for its head-on appearance. Giant isopods and other deep-sea organisms remain largely under-studied, and knowledge of deep-sea ecosystems is still limited. This discovery demonstrates the importance of international scientific collaboration in advancing marine biodiversity research. Continued joint efforts are essential to further explore the largely uncharted depths of the deep sea and to expand our understanding of its unique fauna.

Dr Conni Sidabalok (left) from the Research Center for Biosystematics & Evolution, National Research and Innovation Agency (Indonesia), and Dr Nguyen Thanh Son (right) from VNU University of Science (Vietnam).

Scaling up: increasing LKCNHM's molecular capacity for biodiversity research

The Museum's molecular lab has continued to significantly expand its capacity to support a wide array of biodiversity research projects. Our in-house nanopore sequencing setup has been scaled to support over seven sequencing runs, backed by upgraded computing infrastructure to handle mid-scale amplicon and small-scale whole-genome resequencing projects. We have processed samples from a multitude of taxa, including crabs, fish, sponges, insects, and spiders. By adopting automated liquid handling techniques using the QIAcube Connect™, we have also improved lab efficiency. In the past year, the lab has hosted four undergraduate students, two interns, and four visiting researchers, all of whom have contributed to active projects. Internal workshops and training sessions have fostered knowledge sharing, allowing us to upgrade our bioinformatics capabilities. These developments mark a major step forward in our ability to generate molecular data, enabling us to play a more central role in collaborative biodiversity research in the region and beyond.

A Bit[hyniidae] of a bother solved…for now

Freshwater snails of the family Bithyniidae, small-sized (<5–11 mm) important intermediate hosts of zoonotic parasites, are largely overlooked in Peninsular Malaysia and Singapore.

Drawing on literature and specimen analyses using morphology and molecular tools, Dr Ng Ting Hui (Senior Lecturer at Universiti Malaysia Sabah and LKCNHM Honorary Research Affiliate), and Mr Tan Siong Kiat (LKCNHM Collection Manager of the Mollusca and Brachiopoda) documented two species in Singapore—*Digoniostoma siamensis siamensis* and *Gabbia* cf. *stenothyroides*—possibly introduced in recent decades via the ornamental aquatic plant trade. They also documented three

Gabbia cf. *stenothyroides*, Upper Seletar Reservoir.

Gabbia cf. *stenothyroides* (left) and *Digoniostoma siamensis siamensis* (right) from Singapore.

species in Peninsular Malaysia: *Digoniostoma siamensis siamensis*, *Gabbia minuta*, and *Wattebledia baschi*, the latter two only found in their type localities.

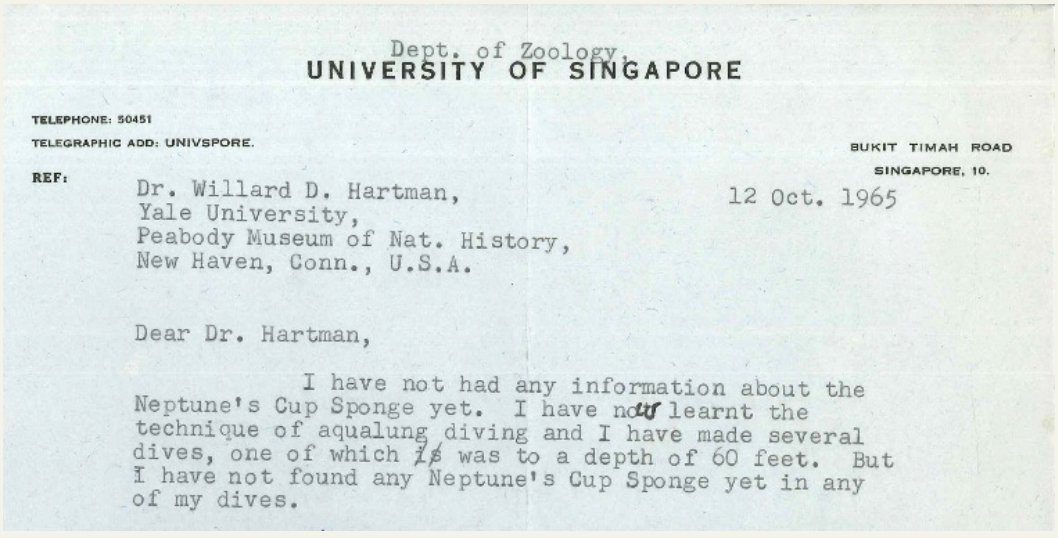
The results elevated *Digoniostoma* to full genus (it was formerly a subgenus of *Bithynia*, the nominal genus of the family), revealed taxonomic inconsistencies within *Gabbia*, and raised concerns about geographically-limited species and anthropogenic species introductions. This study relied on the Museum's collections and type material from other museums. However, further research involving more material from other museums is needed to clarify the taxonomic relationships and natural distributions of the bithyniids for necessary conservation actions to be considered.

National treasures from SH Chuang

In 1957, nearly 70 years ago and before Singapore's independence, retired professor Chuang Shou Hwa (former Head of Zoology Department, University of Singapore, from 1971 to 1977) collected over 100 sponge specimens and sent them to the Yale Peabody Museum. This historic collection offers a rare glimpse into Singapore's marine environment before widespread urbanisation and land reclamation.

As sessile filter feeders, sponges are excellent indicators of marine environmental health. In late 2024, Dr Lim Swee Cheng, LKCNHM's Assistant Senior Curator of Porifera & Other Invertebrates, visited the Yale Peabody Museum to examine and subsample these specimens. Preliminary findings revealed several sponge species previously unrecorded in Singapore's waters.

Letters between Prof Chuang and Dr Willard Hartman, Yale Peabody Museum's sponge curator from 1956 to 1982, were also discovered, enriching our understanding of local marine biodiversity. Notably, Chuang searched for the iconic Neptune's cup sponge (*Cliona patera*) throughout his career but never found it—confirming its absence since 1908 until its rediscovery in 2011.



Dept. of Zoology,
UNIVERSITY OF SINGAPORE

TELEPHONE: 50451
TELEGRAPHIC ADD: UNIVSPORE.
REF:

BUKIT TIMAH ROAD
SINGAPORE, 10.

12 Oct. 1965

Dr. Willard D. Hartman,
Yale University,
Peabody Museum of Nat. History,
New Haven, Conn., U.S.A.

Dear Dr. Hartman,

I have not had any information about the Neptune's Cup Sponge yet. I have now learnt the technique of aqualung diving and I have made several dives, one of which is was to a depth of 60 feet. But I have not found any Neptune's Cup Sponge yet in any of my dives.

Genomics, DNA barcodes and morphology reveal unexpected diversity of a nondescript ant in Indochina and the Indo-Australian Archipelago

Dr Wang (middle) with Thai collaborators collecting ants in Mae Wong National Park, Thailand.

Thanks to its nondescript appearance and subtle differences between species, the diversity of the ant genus *Hypoponera* in the Southeast Asian region is mostly unknown. In collaboration with researchers from Germany, Japan, and Thailand, Dr Wendy Wang (Curator of Insecta & Other Terrestrial Arthropoda) conducted a study combining evidence from genomics, DNA barcodes, and morphology to determine species numbers and to shed light on the evolution of the *Hypoponera pruinosa* group in Indochina and the Indo-Australian region.

Based on their results, the team recognised a total of 26 nominal species in the group, 23 of which are new to science. Biogeographic analyses revealed that the ancestor of the species-group likely originated in Indochina-Borneo around 14 million years ago, subsequently spreading eastwards to neighbouring areas. This study lays the groundwork for additional taxonomic work on the *pruinosa* group.

Shedding light on the swarming, uncharted dark

While animals with backbones such as mammals, birds, reptiles, amphibians and fishes receive much attention, most of nature's creatures are in fact invertebrates, including tiny, nameless insects: the flies, wasps, or beetles that quietly hold ecosystems together. These unsung groups, called 'dark taxa', make up the majority of biodiversity, but are largely unstudied and unnamed.

As part of an international team of researchers, Dr Yuchen Ang (Senior Curator of Insecta) developed a scalable discovery pipeline that enhances the rapid tackling of these overlooked groups, focusing on fungus gnats (Mycetophilidae) which are small flies that thrive where fungi grow. This led to the discovery of at least 115 new species in Singapore—a 25% jump in Southeast Asia's known diversity for this group, just from one country!

Since fungus gnats depend on fungi to survive, these flies could serve as indicators of fungal abundance—an unseen but critical layer of our forests. The next step is to use these tiny flies as a novel metric for ecosystem health.

1mm

A new species of fungus gnat from Singapore that was discovered in the study.

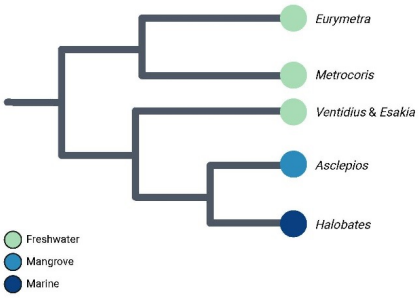
With so many new species to name, the team drew inspiration from Singapore's many historical names. They also honoured the people who helped build the nation, especially women, in scientifically naming these newly discovered Singaporean denizens.

New species discovery of Orthoptera in Southeast Asia

There are more than 2,000 species of Orthoptera—grasshoppers, crickets and katydids—known from Southeast Asia. Nevertheless, this is likely a gross underestimation of the true richness in this hyper diverse region, with many more species still awaiting discovery and to be formally named.

The Museum's Curator of Orthoptera, Dr Tan Ming Kai, along with his collaborators from Sabah, Peninsular Malaysia, and the Philippines, conducted fieldwork in the past year and uncovered 19 species new to science. These include a big-eyed katydid with a blood-red abdomen (*Lipotactes sanguineus*) from Sabah, a large cone-headed katydid named after an indigenous people from Mindanao (*Salomona manobo*), and even a new genus of cricket from Johor (*Malayzacla panti*). Fieldwork in other unexplored parts of Southeast Asia in the coming years will undoubtedly lead to more discoveries and advance our understanding of Orthoptera taxonomy and diversity.

Dr Tan photographing an orthopteran in Panti Forest Reserve, Johor in 2024.

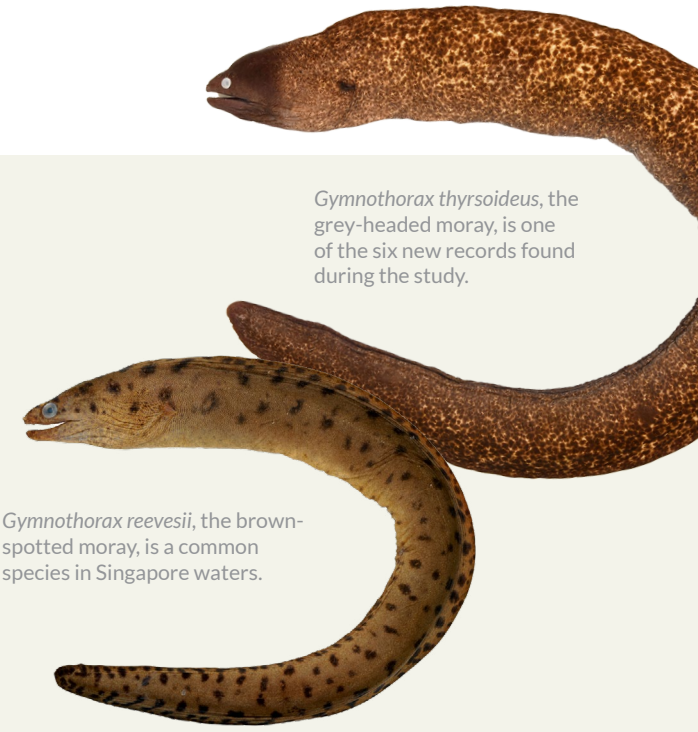


Halobates and its relationship to other water striders

Skimming the (sea) skater: 'shallow' DNA sequencing for a 'deeper' understanding of the origins of marine skaters

Water striders (Gerridae) are a diverse group of insects that have evolved to live on the water surface. They can be found in all types of water bodies, from inland lakes and rivers to mangroves and coastal waters. *Halobates*, colloquially called 'sea skaters', are unique among water striders because they are fully marine in their habit, with five species capable of living out in the open ocean. To date, very little is known about how these insects evolved. Using a 'shallow' DNA sequencing method ('shallow' because only about 5% of the genome is sequenced), LKCNHM Research Fellow, Dr Marc Chang, sequenced the DNA of *Halobates* and other water striders from various museum collections to reconstruct the evolutionary history of *Halobates*. They found that these marine insects descended from a coastal/mangrove-dwelling ancestor, which in turn descended from a freshwater ancestor, thereby clarifying their evolutionary origins. The study also demonstrates how 'shallow' sequencing methods can be used to gain 'deeper' insights into marine insects.

Dr Tan Heok Hui (left) and Dr Huang Wen-Chien (right) with a moray eel specimen.



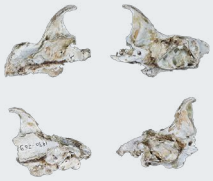
Gymnothorax thyrsoideus, the grey-headed moray, is one of the six new records found during the study.

Gymnothorax reevesii, the brown-spotted moray, is a common species in Singapore waters.

Moray eels of Singapore

Moray eels (Muraenidae) are predatory fishes that tend to live partially hidden in crevices among coral and rock, mainly in tropical seas and estuaries. Dr Huang Wen-Chien (then-PhD candidate at the National Sun Yat-Sen University in Taiwan at the time) worked together with LKCNHM's Mr Kelvin Lim (Senior Collection Manager of Vertebrata) and Dr Tan Heok Hui (Senior Collection Manager of Fishes) to review the diversity of moray eels in Singapore. They used specimens in the Museum's collections as well as other natural history museums, and records in literature and photographs. A total of 14 species from two subfamilies and four genera, including an unidentified species of the genus *Uropterygius* were recognized as locally extant. They regarded 12 other species that were previously recorded as unconfirmed on the basis of a strong likelihood of misidentification, uncertain taxonomic status, or unreliable sources. Six species: one in the genus *Diaphenchelys*, three in the genus *Gymnothorax*, and two in the genus *Strophidon* were recorded for the first time in Singapore waters. A rare hybrid of two *Gymnothorax* species was also identified.

One of the smallest pselaphine beetles (type specimen of *Aphilia reitteri*) collected and described by Raffray from Singapore.



Skeleton of the Malayan civet, *Viverra tangalunga*.

SIGNIFY in Paris

In late 2024, SIGNIFY (Singapore in Global Natural History Museums Information Facility) visited the Muséum national d'Histoire naturelle (MNHN) in Paris, France. The Paris Museum is known for its vast collections, housing 67 million specimens. Over six weeks, the team uncovered and digitised more than 500 specimens collected from Singapore. The extensive Coleoptera collections at MNHN (about 20 million specimens) were of particular interest—including a significant group of beetles collected by Achille MJ Raffray, French Consul in Singapore between 1887 and 1892. Raffray's passion for the Pselaphinae (a subfamily of rove beetles, Staphylinidae) resulted in the description of at least 109 new species from Singapore. Apart from Raffray's collection, the team also imaged several species which represented new national records.

Other specimens of interest from Singapore that the team discovered include several spiders in eminent arachnologist Eugène Simon's collection, a Malayan civet, *Viverra tangalunga* (the only verified specimen from Singapore) and Diard's trogon, *Harpactes diardii sumatranus* (now locally extinct).

Skin of Diard's trogon, *Harpactes diardii sumatranus*.

The largest pselaphine beetle (type specimen of *Batricrator rajah*) collected and described by Raffray from Singapore.

Freshly caught (top) and preserved (bottom) specimens of *Hampala siamensis*, from Thailand.

Three new species of predatory barb, genus *Hampala* (Teleostei: Cyprinidae) from Thailand and Borneo

Fishes of the genus *Hampala* are medium-sized cyprinids growing up to 60 cm in length. They inhabit large rivers, hill streams, and riparian stream habitats throughout Sundaland. They typically have a pointed head (wedge-shaped), a relatively slender and powerful body with a deeply forked caudal fin. They are also strong swimmers and feed on smaller invertebrates and fishes. They are esteemed for sports angling and make good eating.

In 2025, Dr Nonn Panitvong & Dr Tan Heok Hui (Senior Collection Manager of Fishes) described a relatively plain-looking new species with no distinctive body markings/ patterns from southern Thailand, *Hampala siamensis*, found in shorter coastal basins draining into the Andaman Sea. This new species was discovered when Dr Panitvong was conducting research on the freshwater fishes of Thailand. This demonstrates the endemicity of fishes located along the Isthmus of Kra.

In the same year, Dr Tan and Dr Jongkar Grinang (from Universiti Malaysia Sarawak) described two other *Hampala* species of the *H. bimaculata* group from Sarawak, Brunei Darussalam, and Sabah in the northern half of Borneo. *Hampala lupar* has three black bars or marks on the body and is distributed in southern Sarawak. *Hampala katibas* has two black bars and is found from central Sarawak to Sabah. These two new species were discovered as part of the Research for Intensified Management of Bio-Rich Areas of Sarawak (RIMBA) MOU programme between Sarawak Forest Corporation and the Museum to study aquatic organisms of the Lanjak Entimau Wildlife Sanctuary. The separation of *Hampala* species reflects the geological Lupar Divide which separates mainly aquatic organisms into disjunct populations in southern and northern Sarawak.

Shorebirds of a feather fly together: genomics reveal long-term stability and family ties amongst common redshanks in Singapore

The common redshank (*Tringa totanus*) is one of the most common migratory shorebirds encountered in Singapore. Every year, thousands of individuals arrive in Singapore on passage, but little is known about their migratory movement and geographic provenance. Using next-generation sequencing to harvest genomic data from 145 common redshanks in Singapore sampled over 28 years, our Assistant Senior Curator of Aves Dr Tan Yen Yi and LKCNHM Research Affiliate Assoc Prof Frank Rheindt (Department of Biological Sciences, NUS) demonstrated that Singapore's common redshanks have remained genetically stable over nearly three decades, and show long-standing genetic connectivity to populations in Qinghai-Tibet.

Remarkably, the study also provided the first genomic evidence in shorebirds that related family members often return to the same wintering sites together across multiple years. These findings

confirm the species' exceptional fidelity to wintering grounds and highlight important implications for conservation, as low genetic diversity can make populations more vulnerable to environmental changes. The research also demonstrates the power of advanced DNA techniques combined with long-term sampling for monitoring highly mobile species, and it recommends expanding such efforts to better understand migratory connectivity and support conservation planning.

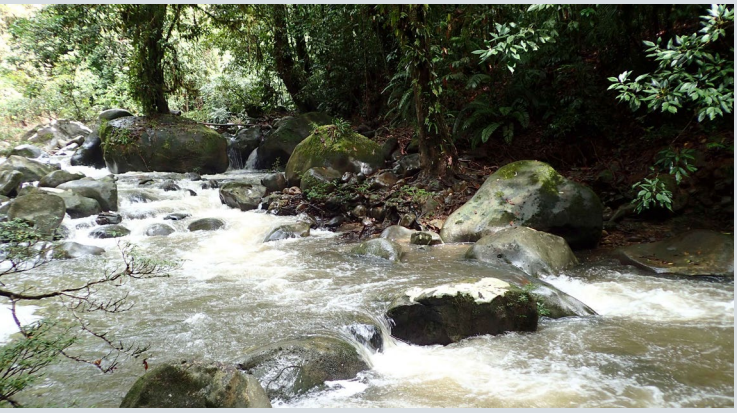
Crossing boundaries: rising challenges for pangolins in Singapore

Research by the Singapore Pangolin Working Group has uncovered an alarming trend: critically endangered pangolins are increasingly moving out of their forest homes and into urban settings. From 1996 to 2021, the study recorded almost double the number of pangolin deaths and rescue cases compared to ordinary sightings, highlighting the escalating pressures these animals face in an ever-urbanising environment.

This study is the first of its kind in Singapore and was a joint effort among several organisations and researchers, including Dr Marcus Chua, Assistant Senior Curator of Mammalia at LKCNHM, along with the Nature Society Singapore, Animal Concerns Research & Education Society (ACRES), Mandai Wildlife Group, and the National Parks Board. Together, they created an extensive database cataloguing pangolin encounters, rescues, and fatalities to help identify key hotspots where pangolins are most at risk.

The knowledge gained from this work will help shape strategies to reduce conflicts between humans and pangolins, supporting efforts to enable their continued survival alongside people in Singapore's urban landscape.

Bigger pictures in conservation: not missing the forest for the trees (or the river for the fishes)



While the Museum may be best known for its taxonomic research and collections, it is also actively involved in ecological and conservation research. Over the past year, significant conservation studies involving multiple Museum staff were published.

One study quantified the conservation value of logged forests in Sabah compared to primary forests, providing practical thresholds for defining lightly logged forest that retained a high biodiversity and conservation value compared to heavily logged forest, while recognising that primary forest is still irreplaceable.

Two other studies focused on often-neglected freshwater habitats. One identified the challenges faced in conserving freshwater habitats in the biodiversity hotspot of Sundaland, while the other conducted a comprehensive assessment of about 23,000 species in order to determine overall extinction threat to freshwater fauna globally.

MUSEUM PUBLICATIONS

Launch of Ida Pfeiffer and Museum Magic storybooks

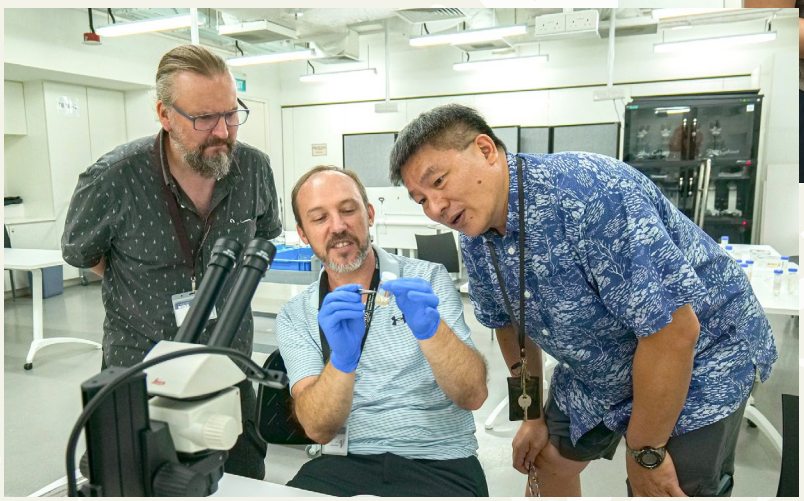
On 18 March 2025, the Museum came alive with imagination and adventure as families gathered for the launch of two new children's storybook projects led by our Education Team: 'Ida Pfeiffer's Adventures in Singapore' and 'Museum Magic'. Children were treated to two lively storytelling sessions featuring tales of tiger hunts and magical museum encounters. Little hands got creative during a DIY handicraft session, crafting tiger bookmarks to bring home. The books were available at special launch prices, allowing families to continue the stories at home. The event was a joyful celebration of nature, storytelling, and Singapore's rich biodiversity.

Research Visitors

Mr Pham Ba Minh Dat	Life Science Center, Experta LLC, Hanoi, Vietnam	12–16 Aug 2024
Ms Hoang Tram Anh	Life Science Center, Experta LLC, Hanoi, Vietnam	12–16 Aug 2024
Mr Dang Quang Khai	Life Science Center, Experta LLC, Hanoi, Vietnam	12–16 Aug 2024
Dr Do Manh Cuong	Life Science Center, Experta LLC, Hanoi, Vietnam	12–16 Aug 2024
Dr Davide Maggioni	Universita degli Studi di Milano-Bicocca, Italy	13–16 Aug 2024
Mr Srinivasan Pandiarajan	American College, Madurai, Tamil Nadu, India	20 Aug – 14 Sep 2024
Dr Chen Yen-Jean	National Museum of Natural Science, Taiwan	26–27 Sep 2024
Mr Chris Wood	Burke Museum, University of Washington, USA	4–10 Oct 2024
Dr Sharon Birks	Burke Museum, University of Washington, USA	4–10 Oct 2024
Dr Nobuyuki Yamaguchi	Institute of Tropical Biodiversity and Sustainable Development, University Malaysia Terengganu, Malaysia	14–17 Oct 2024
Ms Athirah Nabilah Azli	Institute of Tropical Biodiversity and Sustainable Development, University Malaysia Terengganu, Malaysia	14–17 Oct 2024
Dr Sumaitt Putchakarn	Marine Biodiversity Research Unit, Bangsaen Institute of Marine Science (BIMS). Burapha University, Thailand	21–30 Oct 2024
Dr Shane T Ahyong	Australian Museum, Sydney	1–15 Dec 2024
Prof Jostein Kjaedersen	Arctic University of Norway (Tromso)	11 Dec 2024 – 10 Jan 2025
Ms Li Meilin	China Agricultural University, Beijing, China	16 Dec 2024 – 31 Jul 2026
Mr Pakorn Nalinrachatakan	Natapot Warrit lab in Chulalongkorn University, Thailand	11–12 Dec 2024
Mr Nontawat Chatthanabun	Natapot Warrit lab in Chulalongkorn University, Thailand	11–12 Dec 2024
Mr Chawakorn Kunsete	Natapot Warrit lab in Chulalongkorn University, Thailand	11–12 Dec 2024
Mr Sarunwitch Cheensae	Natapot Warrit lab in Chulalongkorn University, Thailand	11–12 Dec 2024
Dr Do Van Tu	Vietnam Academy of Science & Technology in Hanoi, Vietnam	21–27 Jan 2025
Dr Patrick Grootaert	Royal Belgian Institute of Natural Sciences	25 Jan - 28 Feb 2025
Mr Rivera Rodrin Revelleza	Mindanao State University-Iligan Institute of Technology	4 Feb - 7 May 2025
Prof Daniel Edison M Husana	University of the Philippines, Los Banos, Laguna, Philippines	16 Feb - 8 Mar 2025

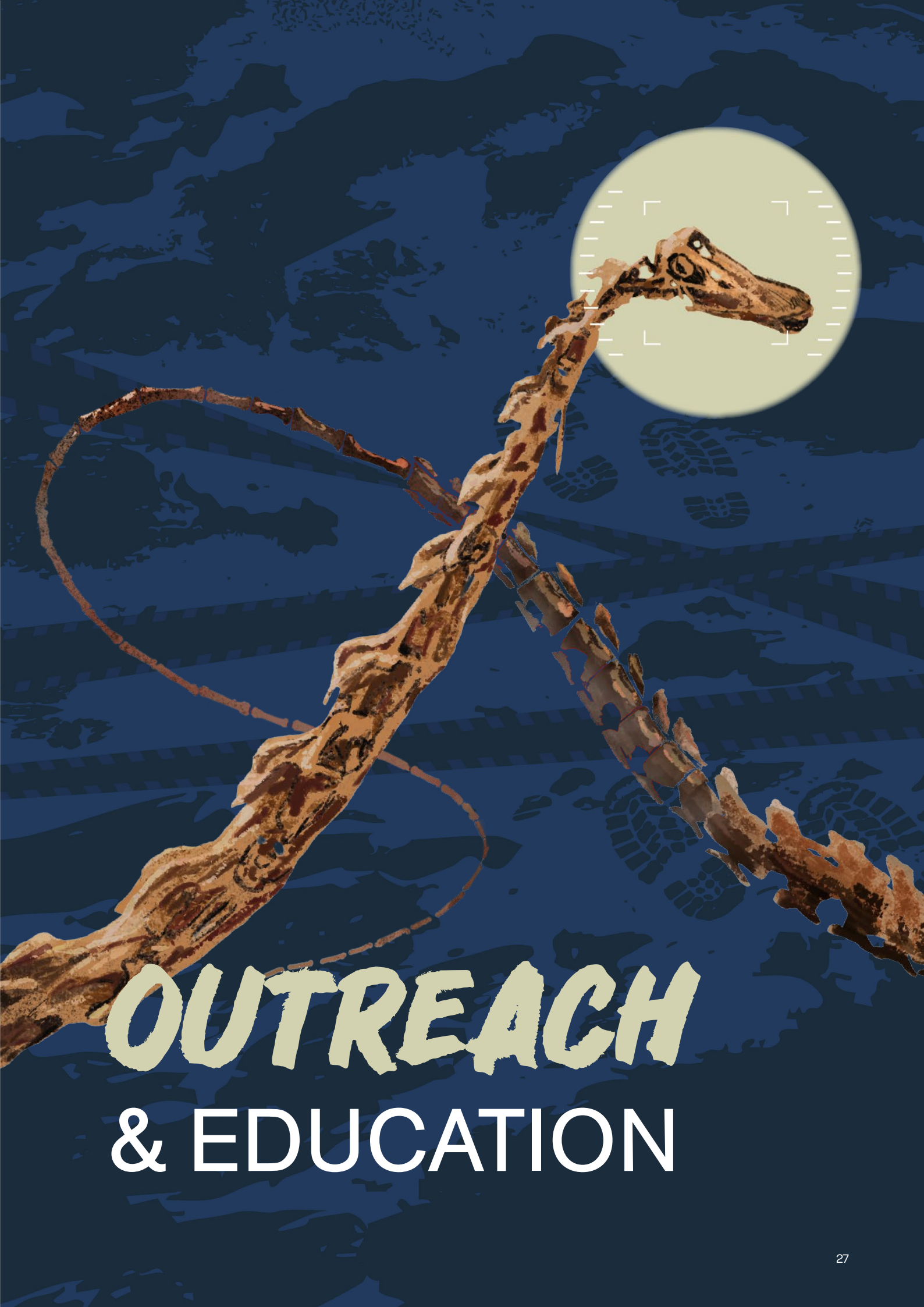
Museum staff with Dr Do Van Tu (bottom right) from the Vietnam Academy of Science & Technology in Hanoi, Vietnam.

Dr Kevin Conway from the Texas A&M University, USA (left), and Dr Michael Hammer from the Museum and Art Gallery of the Northern Territory, Australia (middle), examining a specimen with the Museum's Senior Collection Manager of Fishes, Dr Tan Heok Hui (right).

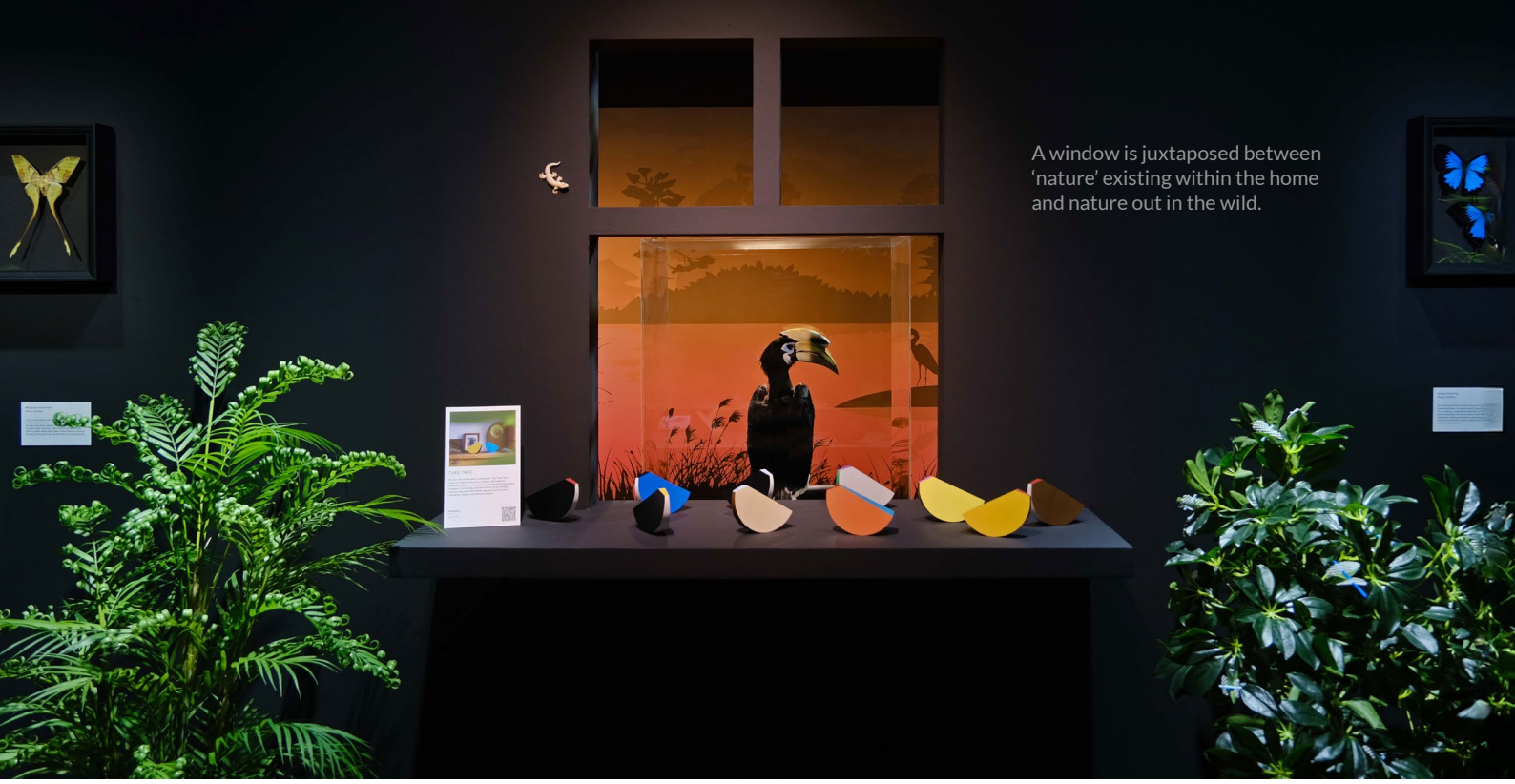


Assistant Senior Curator of Aves, Dr Tan Yen Yi (left) with collaborators, Dr Sharon Birks (middle) and Mr Chris Woods (right) from Burke Museum, University of Washington, USA.

Dr Harutaka Hata	Okinawa Institute of Science & Technology, Japan	17–21 Feb 2025
Ms Amira Aqilah	The Universiti Malaya, Malaysia	7–20 Apr 2025
Dr Tran Anh Duc	VNU University of Science, Vietnam	13–30 Apr 2025
Dr Emanuel Tschopp	Freie Universität Berlin, Germany	2–15 May 2025
Mr Ivison de Lima	University of São Paulo – Institute of Biosciences, Brazil	13–16 May 2025
Dr Max Barclay	Natural History Museum, London	20 May – 2 Jun 2025
Dr Dmitry Telnov	Natural History Museum, London	20 May – 2 Jun 2025
Dr Levente-Péter Kolcsár	Independent Researcher (prior from Ehime University, Japan)	9–11 Jun 2025
Ms Kamonchanok Wongissarakul	Thailand Natural History Museum (THNHM)	9–13 Jun 2025
Dr Weeyawat Jaitrong	Thai Natural History Museum, National Science Museum Thailand	15–21 Jun 2025
Ms Kuntima Yodprasit	Kasetsart University; Thai Natural History Museum	15–28 Jun 2025
Dr Kevin Conway	Texas A&M University, USA	16–27 Jun 2025
Dr Michael Hammer	Museum and Art Gallery of the Northern Territory, Australia	16–27 Jun 2025
Dr Matthew Bulbert	Oxford Brookes University, UK	16–27 Jun 2025
Mr Daniel Bardey	Oxford Brookes University, UK	16–27 Jun 2025
Dr Tohru Naruse	University of the Ryukus, Okinawa, Japan	14–16 Jul 2025
Dr Krittiya Trivalairat	Mahidol University, Bangkok, Thailand	14–27 Jul 2025
Dr Poramad Trivalairat	Chulabhorn Royal Academy, Bangkok, Thailand	14–27 Jul 2025
Mr George Popovici	Richard Gilder Graduate School, American Museum of Natural History	21 Jul – 5 Aug 2025
Dr Mani Prema	Centre for Marine Living Resources & Ecology, Ministry of Earth Sciences, Cochin, India	21 Jul – 20 Aug 2025
Dr Choo Le Qin	The Chinese University of Hong Kong	31 Jul – 7 Aug 2025



OUTREACH & EDUCATION



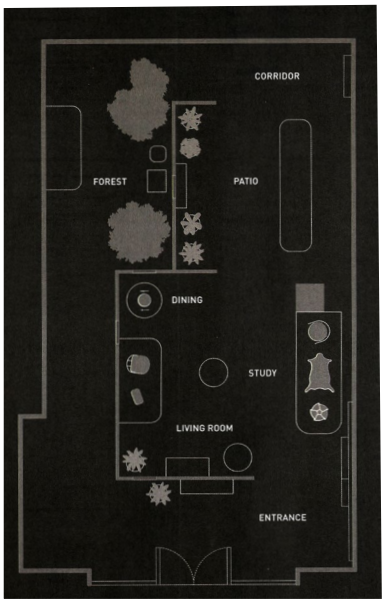
A window is juxtaposed between ‘nature’ existing within the home and nature out in the wild.

The Nature of Things: Dialogues with the Living

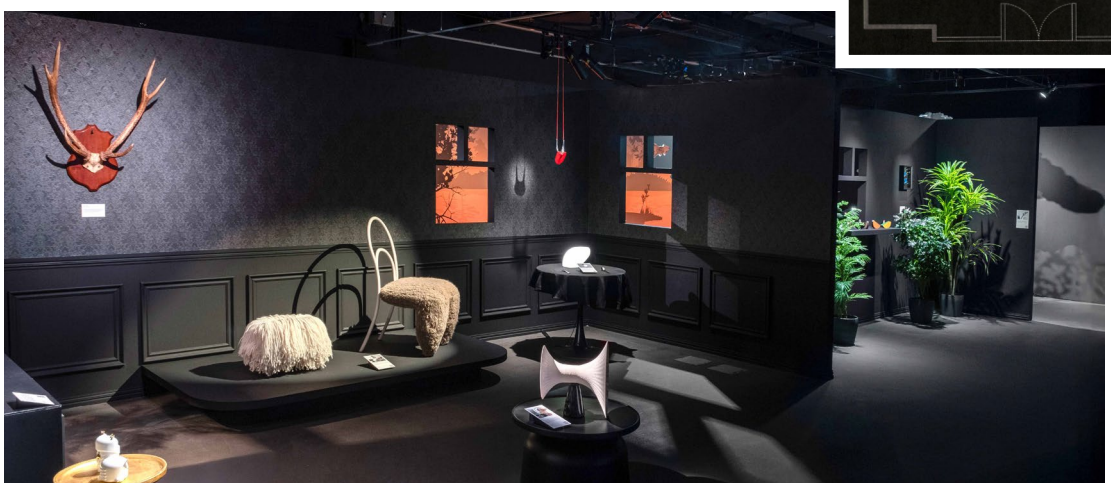
Held from September 2024 to January 2025, ‘The Nature of Things’ exhibition sparked a conversation about nature and Singapore’s identity as a unique urban biodiversity hotspot. Designed by students and recent graduates of the Division of Industrial Design (DID), College of Design and Environment, NUS, the exhibition featured a curated selection of works meant to evoke contemplation.

Questioning our relationship with nature and urban living, the various projects reflected the different facets of the natural world—the nature we know, the nature we find useful, and the nature we sometimes choose to ignore. This collaboration between the Design Incubation Centre (DIC) and the Museum, NUS, exemplifies an interdisciplinary cooperation, aiming to uncover present and future challenges, as well as possible paths forward. The exhibition was also a participant of Singapore Design Week 2024.

Using the setting of a house, visitors encountered the different projects and designed objects in a setting that is familiar yet strange.



Like actors posed on a stage, these design objects were intended to showcase the tension between humans and nature.



Showcasing the collection beyond our Museum

In 2025, the Museum collaborated with partner institutions on several external exhibitions. Among these was the ArtScience Museum's 'Iris van Herpen: Sculpting the Senses' exhibition, showcasing the work of a leading contemporary fashion designer, to which the Museum contributed specimens. The gallery team also supported the Alliance Française de Singapour with specimen loans in their presentation of 'Ocean: Diving into the Unknown'—a traveling exhibition originally designed and produced by the French National Museum of Natural History, highlighting France's rich maritime heritage.

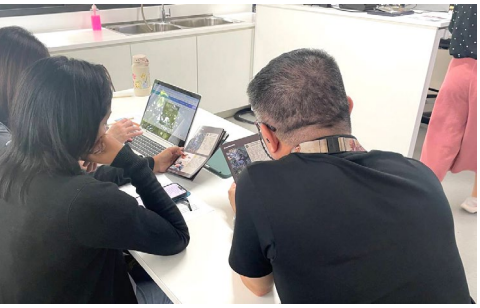
The Museum loaned a variety of marine specimens from our collection and models to supplement the 'Ocean' exhibition.

Marine invertebrate specimens, including corals, urchins, heart cockles and a Venus' flower basket sponge (below), as well as a beehive specimen (right), loaned from LKCNHM, on display at the ArtScience Museum's 'Iris van Herpen' exhibition.

Exploring mammal ecology: highlights from the 2024 Aspiring Naturalist Programme

The 2024 LKCNHM Aspiring Naturalist Programme, now in its third year, welcomed over 50 participants for a themed workshop on 'Natural History and Mammal Ecology'. Held from 23 to 28 November, the programme featured gallery and collection tours, along with hands-on activities such as setting up camera traps, analysing mammal scat, and learning about threats faced by endangered species like rhinos, elephants, and pangolins. Participants also joined a guided night walk at Pulau Ubin, organised with support from the Singapore Wildcat Action Group. The programme continues to inspire youth and aspiring naturalists, deepening public awareness of local biodiversity and conservation.

> **"It was super fun and interesting. It was my first time in the collections and the museum tour was also very detailed. The activities were great, I got to set up a camera trap, retrieve photos from it and learn more about different animals. I even got to sort and examine scats! The tour was excellent, I managed to see a ton of animals and also got to get a close look at them."**
>
> - Participant of the Aspiring Naturalist Programme



From specimens to social media: empowering teachers in science communication

Inspired by our ‘Nature in Singapore Biodiversity Records (NiSBR)’ Instagram series, teachers from North Vista Secondary School collaborated with the Museum’s Education Team on a pilot Science Communication workshop. The two-part programme began with an in-museum session focused on science communication and multimodal text creation, including specimen observation and designing Instagram-style biodiversity posts using Canva. The second session held at Sungei Buloh Wetland Reserve featured guided exploration using the ‘30 Fauna of Sungei Buloh’ booklet and photography tips. This initiative empowered teachers to communicate science creatively and fostered a deeper appreciation of biodiversity, laying the groundwork for potential future student-focused workshops.

> **The stations were very interesting and the activities at each station were able to effectively engage the students in learning. The workshop was really effective in achieving its objectives."**
>
> - A school teacher

Uncovering the deep: engaging students in marine science and conservation

Supported by HSBC, the Marine Ecology and Natural History Programme (MENH) offered students an engaging 2.5-hour session featuring a themed gallery tour, hands-on activities, and presentations on past Museum marine expeditions such as the South Java Deep Sea Biodiversity Expedition and Christmas Island trips. Students explored marine biodiversity in Southeast Asia, learnt about ecological challenges like marine noise pollution, and discovered research techniques including environmental DNA analysis. Designed for upper primary and secondary students, with weekend sessions available for the public, these free workshops ran from Feb 2025 until Aug 2025. The programme provided an immersive experience that deepens understanding of local marine ecosystems and the Museum's conservation efforts.

10 years on: LKCNHM returns to its roots with ‘Day of Curiosity’

On 18 May 2025, the Lee Kong Chian Natural History Museum marked International Museum Day with an open house—‘Day of Curiosity’. A similar open house in 2009 at the Raffles Museum of Biodiversity Research (the Museum’s predecessor)—also held in celebration of International Museum Day—ignited public enthusiasm and the idea for a dedicated natural history museum in Singapore. That vision was realised with the opening of LKCNHM a decade ago on 18 April 2015.

This year’s open house drew hundreds of visitors, from families with young children to long-standing supporters of the Museum. Guests enjoyed a special 10th anniversary edition of our gallery tours, exclusive behind-the-scenes visits to the collections, and an immersive journey through Singapore’s natural history in our new inflatable planetarium.

Lying comfortably on cushioned seats, visitors enjoyed an in-house production, ‘A Journey Through Singapore’s Natural History’, which traced the Museum’s 10-year story—from deep-sea expeditions and species discoveries to international research collaborations.

Night at LKCNHM: A Museum Heist Investigation

Over five thrilling nights, 250 curious participants transformed into detectives at 'Night at LKCNHM: A Museum Heist Investigation', an immersive programme celebrating the Museum's 10th anniversary. Spearheaded by the Education Team and supported by experts from NUS Forensic Science and NUS Physics, guests investigated the theft of dinosaur and prehistoric fossils through hands-on activities blending science, nature, and forensic skills. From analysing clues to gathering evidence, each night was a journey into palaeontology and mystery-solving. The experience was enhanced by exclusive access to our new inflatable planetarium, showcasing the Museum's dedication to innovative education and public engagement.

> **"The programme was well-designed, and all the stations were educational, engaging, and explained in a way that was easy for the children to understand. All of us enjoyed the night soooo much!"**
>
> - Participant of Night at LKCNHM

> **"Very insightful and educational. Wonderfully planned programme! Great hospitality from staff and forensic science students too!"**
>
> - Participant of Night at LKCNHM

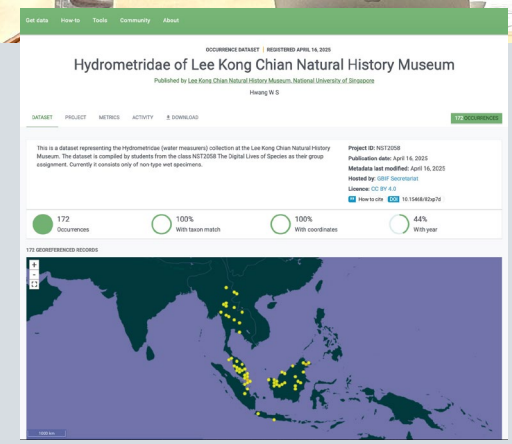
Building an inclusive museum experience for all, with our volunteers

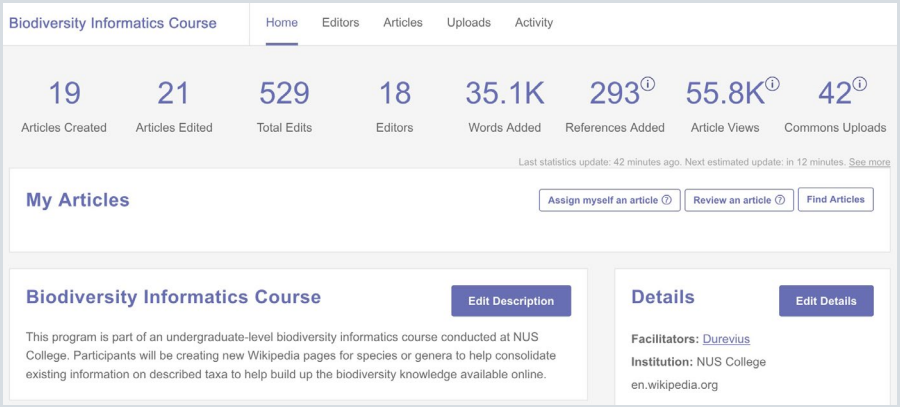
Over the years, the Museum has made great strides in accessibility and inclusivity, thanks to the vital support of our volunteer docents. Alongside our Education Team, they engaged over 1,500 participants from diverse groups, including youth, seniors, and individuals with various special needs, through complimentary admission, guided tours, and tailored workshops. Volunteers have been especially active in these inclusive programmes and activities, ensuring all visitors feel welcomed and supported. Their dedication enriches the visitor experience and strengthens community ties. These ongoing efforts demonstrate the Museum's strong commitment to fostering an inclusive and accessible space for all to explore natural history. We would like to thank our donors for making this possible.

Seeing the big picture: conservation through science and technology

Supported by ExxonMobil, the Conservation and Sustainability Programme (CSP) offered fully sponsored, engaging workshops for students of secondary school level and above. Through guided gallery tours and hands-on activities, participants explored the vital connections between biodiversity conservation and sustainability. They learnt about threats such as habitat loss and illegal wildlife trade, alongside Singapore's conservation efforts, and got an up-close look at specimens like the dugong, hawksbill sea turtle, and Oriental pied hornbill. The programme also introduced Geographic Information System (GIS) tools like Google Earth Pro to observe land use changes—fostering practical understanding and a stronger commitment to conservation.

> **"The workshop('s) station rotation model enabled them to learn more interactively. Also, the guided tour in the museum with a slant towards conservation and sustainability is very good. It helps them to see more of the exhibit and learn more about conservation and sustainability. I am grateful for this opportunity for the students as they learn to see that in the real world, everything is quite related. They could use this experience to see links between Geography and Biology."**
>
> - A teacher from Clementi Town Secondary School





Inaugural undergraduate course on biodiversity informatics

A brand-new undergraduate course, 'The Digital Lives of Species', was launched in January 2025. Taught at NUS College by Dr Hwang Wei Song, Senior Lecturer and Senior Curator of Insecta, this interdisciplinary course introduces students to the emerging field of Biodiversity Informatics, which involves the harnessing of information technology tools to improve and enhance the organisation and dissemination of biodiversity data on the Internet. Through a problem-based learning approach aimed at tackling today's biodiversity crisis, the students explore the what, where, and how real-world biodiversity information gets shared online. The students got first-hand experience digitising biological specimens using the Museum's natural history collections. A separate assignment improved the real-time online accessibility of species data using the Wiki Education portal. Through these activities, the students gained a better understanding of the current state of biodiversity data sharing and its promising potential.

NUS Courses taught by Museum Staff

No.	NUS Course	Staff	No. of Students
1	BL5225 Marine Conservation	A/P Huang Danwei	29
2	BL5230 Biological Invasions	A/P Darren Yeo	20
3	BL5102 Environmental Science	Dr Joelle Lai	34
4	BL5312 Natural History Collections and Conservation	Dr Lim Swee Cheng	20
5	LSM3252 Evolution and Comparative Genomics	A/P Huang Danwei	20
6	LSM3254 Ecology of Aquatic Environments	A/P Darren Yeo	87
7	LSM4261 Marine Biology	A/P Huang Danwei	44
8	LSM4263 Field Studies in Biodiversity	Dr Tan Yen Yi	30
9	LSM4264 Freshwater Biology	A/P Darren Yeo	16
10	NST2002 Evolution	Dr Hwang Wei Song	18
11	NST2007 Biodiversity and Natural History in Singapore	Dr Yuchen Ang	NA
12	NST2008 Invertebrate Innovations	Dr Jose Christopher Mendoza	20
13	NST2058 The Digital Lives of Species	Dr Hwang Wei Song	18
14	UTC1419 Inside the Museum: Collections and the Public	Dr Joelle Lai	19

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Page 16	Bottom left photo: Ng Ting Hui; bottom right photo: Rene Ong
Page 18	Weeyawat Jaitrong, THNHM
	Maimon Hussin
Page 19	Tan Ming Kai
Page 20	Tan Heok Hui
Page 22	Top photo: Nonn Panitvong; bottom photo: Tan Heok Hui
Page 23	Tan Yen Yi
	Marcus Chua
Page 24	Tan Siong Kiat
Page 28	Design Incubation Centre, NUS
Page 37	Hwang Wei Song

All remaining photographs featured in this report are by the Lee Kong Chian Natural History Museum, Faculty of Science, National University of Singapore.

Sources

Page 21	SIGNIFY & Muséum national d'Histoire naturelle
Page 29	'Ocean: Diving into the unknown' presented by Alliance Française de Singapour, originally designed and produced by the National Museum of Natural History (Paris, France) Images courtesy of Marina Bay Sands

Support our Natural Heritage

The Museum is dedicated to preserving and sharing the wonders of the natural world with people of all ages and backgrounds. We are home to a collection of over a million specimens, some of which date back to the 1800s, that reflect the diversity and beauty of our flora and fauna in Singapore and in the Southeast Asian region. We rely almost entirely on the generous support of donors like you to continue our work in scientific and biodiversity historical research, as well as inspire visitors to appreciate and protect the natural world. Your donation will help us maintain our collections, fund new research projects, develop new exhibits, and support our educational programs.

Scan the QR code to donate now!

Protect and preserve our natural heritage for future generations today.

NUS National University of Singapore | Lee Kong Chian Natural History Museum

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