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# NATURE WATCH

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## Pitcher Plants & Zoology



Birding Marathon: A Student's Year-Long Avian Quest  
Tree Upcycling at Alexandra Hospital  
Peace with Nature





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# NSS Exco's Message

LOOKING BACK, 2023 has been amazing. In particular, we would like to celebrate the remarkable contributions of our dedicated volunteers – their stories, initiatives, and incredible impact made. As a case in point, the NSS Exco and Council are entirely made up of volunteers. This year, we dived into strategic planning to chart out the next five years for the Society, aligning our perspectives and how we intend to move nature conservation forward. In the process, we identified focus areas and strengthened NSS's operations.

Our volunteers and members have made and will continue to make a difference. Their efforts range from habitat restoration and wildlife conservation to community engagement and education. Two key events happening this quarter include the Singapore Bird Race and Every Singaporean a Naturalist (ESN) Symposium. Event participants can attest to the transformative power of volunteerism in bringing naturalists of all ages and from all walks of life together to spur each other on. We have started our Volunteer Outreach training series to better equip volunteers who are advocating for conservation.

Volunteer management in the conservation field requires patience, empathy, and effective communication. Amidst the challenges are countless rewards. Witnessing the growth, sense of purpose, and fulfilment that volunteers experience is humbling. We are reminded that by fostering the giving of one's time and energy, we are not only taking care of the natural world, but nurturing a generation of passionate advocates for a sustainable future.

*Nature Watch* features some of these volunteer accounts. By reading about them, I hope that you will be inspired to join us in our mission. Whether you have a few hours to spare or wish to dedicate your lifetime to nature and her causes, we have a place for everyone. Together, we can create a ripple effect of positive change and better protect our planet.

Thank you to all volunteers past and present, who have played their part in our conservation efforts and inspired us greatly.

In 2024, we are thrilled to announce two special events close to our hearts. First, we will be hosting the 5<sup>th</sup> IUCN Horseshoe Crab Conference in June, in conjunction with the IUCN Species Survival Commission Horseshoe Crab Specialist Group. This event provides a platform to discuss science and formulate plans to better protect horseshoe crabs. Second, we will be celebrating the Society's 70<sup>th</sup> anniversary. As we look to a future filled with even greater triumphs, this special occasion is also an opportunity to honour the efforts of our staff, volunteers, and sponsors who have contributed to our achievements these past years. In the meantime, let us press on to do our part for a green future.



Wishing you well,

**Huang Ningxin**

Assistant Secretary & Volunteer Management Committee Chair



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### CONTRIBUTING TO NATURE WATCH

We welcome your articles, surveys, studies, observations, artworks and photo essays on biodiversity, natural history, conservation and related fields. Please email your story proposal to [contact@nss.org.sg](mailto:contact@nss.org.sg). Do include samples of your photographs (maximum 20 images per submission). We require high resolution JPEG images (ideally uncropped) in the largest size available, labelled with a descriptive file name.

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**ON THE COVER** The Peracca's Land Crab often opportunistically feeds on the detritus and unfortunate victims of the pitchers. Photo: Law Ingg Thong.

A Peracca's Land Crab  
finds refuge in the  
Narrow-lid Pitcher Plant.  
Photo: Law Ing Sind.

A detailed photograph of a Peracca's Land Crab (Peracca's Land Crab) perched on a large, brown, textured leaf of a Narrow-lid Pitcher Plant (Nepenthes sp.). The crab is positioned on the left side of the leaf, facing towards the right. Its body is dark brown with lighter, yellowish-orange highlights on its legs and claws. The leaf is thick and has a prominent, ribbed texture. The background is dark, making the crab and the leaf stand out. The overall scene is a close-up, highlighting the intricate details of both the animal and the plant.

# Pitcher Plants & Zoology

Pitcher plants do not just devour hapless insects for their nitrogen needs. Highly-evolved ones form mutualistic relationships with a host of animals, from crabs to treeshrews. Law Ing Sind explores this fascinating topic.

By LAW ING SIND



**O** Zoological collecting expeditions often reward with a spectrum of unique vistas. From the unfrequented mountain tops along the central spine of Malaysia to the deep swamps of southern Malaysia, they yield a plethora of flora by-catch that would make any botanist giddy with excitement. What is fascinating to me as an amphibian and reptile researcher is the interconnected ecological interactions present in the tropics.

First off, there is the evolution of hyper parasitic plants like the Leafless Mistletoe (*Viscum articulatum*) that only leeches off other parasitic mistletoes. Then there are epiphytic plant assemblages like ant plants (*Myrmecodia* spp), staghorn ferns (*Platycerium* spp), and the Ant Fern (*Lecanopteris sinuosa*) that form mutualistic relationships with ant colonies. These ecological matrix assemblages resemble leaf litter layers that we have just begun to unravel.

### Mutualism Between Pitchers & Animals

Of great personal interest (and let's face it, obsession), is the mutual evolution of pitcher plants (*Nepenthes* spp) and organisms of a zoological persuasion that rely on pitchers at some point in their lifecycles. Due to the paucity of nitrogen in peat and sandy soils, species in the pitcher family *Nepentheceae* have evolved appendages at the end of their leaf blades. They consist of a pitcher filled with digestive fluid, a lid and peristome (rim) that secretes nectar to lure and trap insects as a nitrogen-rich snack. Some pitcher species have evolved away from carnivory. Instead, they build symbiotic relationships (mutualism) with their would-be prey, beneficial to all involved parties. In so doing, they develop unique micro-biomes that support different groups of animals.

For example, the great Fanged Pitcher Plant (*Nepenthes*

*bicalcarata*) of Borneo has a beneficial relationship with Diving Ants (*Camponotus schmitzi*). The plant provides residence to the ants at the base of the tendril. In

Some pitcher species have evolved away from carnivory. Instead, they build symbiotic relationships (mutualism) with their would-be prey.

turn, the ants dive into the pitcher to retrieve large prey items that would otherwise putrefy and lead to the demise of the individual pitcher. The Diving Ants are rather aggressive. They would not hesitate to attack pests and overly curious zoologists who get too close when admiring this majestic plant.

Coprophagous pitchers derive a significant amount of nitrogen from fecal material deposited within their traps. They have developed novel ways of securing pre-

cious sources of copro-material. Coprophagites such as Low's Pitcher Plant (*N. lowii*) have evolved laxatives in their pitcher nectaries to induce the Mountain Treeshrew (*Tupaia montana*) to poop into its pitcher, amusingly shaped like a toilet bowl.

The slender and gracile Hemsleyana Pitcher Plant (*Nepenthes hemsleyana*) has evolved an elegant solution to attracting bats. By having a high elongate peristome that has a specific echo reflectance to the ultrasonic calls of Hardwicke's Woolly Bats (*Kerivoula hardwickii*), this pitcher advertises itself as a safe roost. By day, the bats sleep inside the plant, depositing cargoes of guano amounting to over 34% of the pitcher's nitrogen requirements.

Another well-established mutualism, this time leaning in favour of the animal, is the relationship between the Matang



A Hardwicke's Woolly Bat roosting inside the Hemsleyana Pitcher Plant. Note the elongate peristome.

Photo: Dr Sean Yap.

Narrow-mouthed Frog (*Microhyla nepenthicola*) and the tubby squat pitchers of the Narrow-lid Pitcher Plant (*Nepenthes ampullaria*).

This plant has a curious growth habit. The main vine climbs to the canopy layer to capture sunlight and produce flowers while basal rosettes form along the lower vines and under the leaf litter. These carpeted pitchers on the forest floor provide a microhabitat for various organisms. The ampule-like pitchers have a reflexed lid that allows detritus such as leaves and other organic material to fall into them. This makes the Narrow-lid Pitcher Plant detritivorous rather than carnivorous.

Some species of phytothelmic frogs make use of plant-held water bodies such as those in the Narrow-lid Pitcher Plant to breed safely. Such frogs include tiny *microhylids* like the Matang Narrow-mouthed Frog and Lim's Black-spotted Sticky Frog (*Kalophrynus limbooliati*). The excreta of tadpoles developing in these pitchers may improve the nitrogen collected.

Conversely, this arrangement does not seem to harm the plant.

Breeding in the pitchers presumably allows the tadpoles to escape the high mortality rates associated with the drying out of ephemeral puddles where *microhylids* usually lay their eggs.

Other species such as the Peracca's Land Crab (*Geosesarma perracae*) are known to take refuge in and around the Narrow-lid Pitcher Plant. They often opportunistically feed on the detritus and unfortunate victims of the pitchers.

### Confusing Quagmire

The taxonomic (naming and classification) treatises on the *Nepenthes* genus have long been

muddled. It is compounded by the fact that the phylogeny (evolutionary history) cannot be inferred from the physical aspects of the plants. It can only be reliably determined upon molecular work. Cronquist (1988) relied heavily on traits that were convergently evolved rather than on ancestral traits unique to each lineage. This caused *Nepentheceae* (tropical pitcher plant family from Madagascar, Southeast Asia and Australia) to be placed in the order *Nepenthales* together with other carnivorous families. However, this is erroneous when compared to the integrative approach used to investigate phylogeny. Recent molecular phylogeny recovered *Nepentheceae* and *Droseraceae* (sundew family) as being nestled within the order *Caryophyllales* (Biswal et al, 2018).

To complicate things, morphology (shape and structure) itself can be highly variable within a single species. In the current taxonomic framework, many spe-

cies are still being described using qualitative morphological methods, as opposed to an integrative approach using robust statistical methods to account for morpho-variation and molecular sequences. In addition, some *Nepenthes* species differ in pitcher morphology based on how high along the vines they develop. Aerial pitchers are usually elongate, basals tend to be orbiculate (rounded), and intermediates have a combination of both shapes. Therefore, type materials should optimally incorporate all three pitcher forms.

Pitcher dimorphism or trimorphism as well as the penchant for almost all pitcher species to hybridise with one another regardless of geographic range, elevation or genetic differences, show how unstable species boundaries are. Many hybrids are able to hybridise with other hybrids, resulting in the formation of complex pitcher hybrids that are viable. For example, the classic Victorian complex hybrid

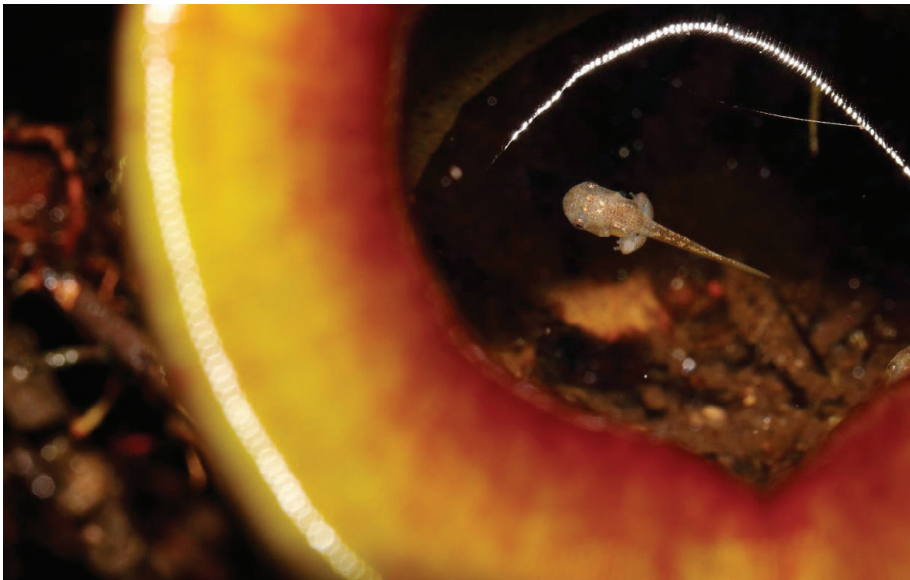
**Right: Various *Nepenthes***

1. *N. hirsuta*
2. *N. macfarlanei*
3. *N. ampullaria*
4. *N. sanguinea*
5. *N. rafflesiana*
6. *N. bicalcarata*
7. *N. gracilis*
8. *N. albomarginata*

Photos: Law Ing Sind and Danial Aqil.







**Tadpole of the Matang Narrow-mouthed Frog developing within the safe confines of the Narrow-lid Pitcher Plant, photographed at the type locality of Kubah National Park in Sarawak, Borneo.** Photo: Law Ing Thong.

*N. x dyeriana*, created by crossing *N. x (northiana x maxima)* with *N. x (rafflesiana x veitchii)*, has existed in horticulture for 142 years. It remains a popular mainstay within pitcher plant collections.

Many species are being sunk as naturally occurring hybrids or assigned as junior synonyms. For example *N. x hookeriana* (= *ampullaria x rafflesiana*), *N. trichocarpa* (= *gracilis x ampullaria*) or the case of *N. hurrelliana* (= *N. mollis*). Such confusing variability and phenotypic plasticity combined with unstable hybrid boundaries do make for incongruent species boundaries.

Species descriptions such as the one made for the Velvet Pitcher Plant (*N. mollis*) show the complexity that taxonomists had to work with when designating type material, as the species holotype did not have any pitchers. Recently, the Velvet Pitcher Plant was rediscovered from the type locality of Mount Kemul and its pitchers compared with *N. hurrelliana* to find that both were one and the same plant (Robinson et al, 2019).

● ● ●  
*Nepenthes* evolved in a competitive tropical habitat where pitcher morphology contributes towards trapping efficacy. This in turn contributes to fitness and is hence highly selected for.

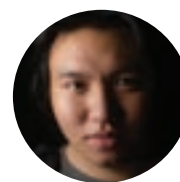
### The Evolution of Symbiosis

*Nepenthes* evolved in a competitive tropical habitat where pitcher morphology contributes towards trapping efficacy. This in turn contributes to fitness and is hence highly selected for. It explains why even within a single species, there are differentiated aerial, basal and intermediate pitcher morphologies. The differentiation increases trapping efficiency as the vine climbs and transitions from a forest floor prey assemblage to that of a canopy assemblage. Competition is a strong evolutionary driver to optimise any pitcher modification that would increase fitness in the plant. It would explain why many species of *Nepenthes* have independently evolved exclusive symbiotic relationships with animals.

Most studies have demonstrated that the *Nepenthes* symbiote greatly contributes to the nitrogen capture of the individual plant (Lam et al, 2019; Leong et al, 2018; Adlassnig et al, 2011). To date, no *Nepenthes* study has shown any correlation between phylogeny, habitat or niche association, and symbiosis. 🌿

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**Law Ing Sind** is a conservationist, co-founder of the Herpetological Society of Singapore, and a zoology graduate from the University of Reading. His interest in writing and photography are intertwined and he often finds one aiding the other.



A Big Year is a gruelling birding marathon to see as many bird species as possible in one year. As a 13-year-old student then, **Kaeden Sim** dedicated 2022 to a crazed rush around Singapore to chalk up birds. He shares the intense ups and downs of his monumental quest.

# Birding Marathon

A Student's Year-Long Avian Quest

*Text and Photos By* **KAEDEN SIM**



YEAR  
BIRD

#232

Black and Red Broadbill  
at Sungei Buloh Wetland  
Reserve on 28 May 2022.





The idea of doing a Big Year first came up when I chanced upon a friend’s Facebook post summarising his epic Big Year in 2021. I was mesmerised by the idea that through grit, determination and passion, he had seen such a high number of birds. I was all fired up to try for the 421 bird species found in Singapore. With major exams and school commitments set to build up in the next few years, my secondary one year was my best bet to undertake this monumental, time-consuming quest. However, school was still an obstacle with classes, exams, and extra-curricular activities sprinkled throughout the year. I had to make do. My Big Year was essentially shortened to a Big 160 days, comprising all weekends and school holidays.



Young ones under the wings of veteran birder Kim Chuah who helped them find their target birds at Sime Forest. L to R: Kaeden Sim, Lim Kim Chuah, Samuel Chong, Pluem Chamadol and Joshua Chong.



1 JANUARY 2022

### The First Day

Waking up at the crack of dawn, I had a flame-like passion burning inside me. I was determined to make the most of the first day of my Big Year. Stamina and time management would be my weapons. My strategy was to tick off the challenging migratory species first before tackling the common and uncommon residents.

I headed for the marshes and rainwater ponds of Marina East Drive. My first year bird turned out to be the resident Purple Heron (*Ardea purpurea*) silently walking in the long grass and scanning for prey. One year bird after another fed my euphoria. I felt like a new birder again, with every species seen being a lifer (bird seen for the first time in one’s life). Paddyfield Pipits (*Anthus rufulus*) were scattered across the grassland while various species of raptors soared above my head. But the true stars that morning were the Dusky Warbler (*Phylloscopus fuscatus*) and Baillon’s Crake (*Zapornia pusilla*), both skulking in the flooded plains. As the day progressed, I added to the tally, eventually hitting 50 birds. I would soon learn that the thrill of racking up year birds at a clipped pace would only last a short while.



11 JANUARY 2022

### Going Cuckoo

Just 11 days into the year and each of my outings yielded a paltry five year birds or so, compared to the haul of 20 plus species per trip in my first week. I was exhausted, not from the constant birding, but from my pursuit of one rare bird – the Asian Emerald Cuckoo (*Chrysococcyx maculatus*). This species enchants with its iridescent emerald shine. Along with many others, I rushed down to Jurong Lake Garden the day it was sighted. But my luck was terrible – the bird disappeared when I arrived and appeared when I left. My disappointment was immeasurable. Many trips ensued but they amounted to nothing. The consolation of ticking off other year birds in the process was not enough. I was going cuckoo with obsession. Hundreds of frenzied messages flooded the group chats such as “Emerald Cuckoo at the South Promenade platform. Come now!” After roasting in the sun for 12 hours the day before with nothing to show, my determination was waning. But I knew that this was my last chance. I scarfed down my lunch and made a mad dash for the door, accompanied by my father. He too wanted me to end the wild goose chase and my constant





The consolation of ticking off other year birds in the process was not enough. I was going cuckoo with obsession. Hundreds of frenzied messages flooded the group chats such as “Emerald Cuckoo at the South Promenade platform. Come now!”

complaints of dipping the cuckoo. Arriving at the carpark, I ran faster than ever before. I was out of breath when I reached the site. I looked up and there it was. The cuckoo vanished after a few minutes. Such is birding, an unpredictable combination of grit and luck.

15 MARCH 2022  
*Pratincole Promise*

Neo Tiew Harvest Lane used to be a wonderful spot for waders, with flocks of them foraging in the freshwater marshes. It even yielded the rare Long-toed Stint (*Calidris subminuta*) on one occasion. Of late, it has become a construction site. But its old magic still lingers. An Oriental Pratincole (*Glareola maldivarum*), a ravishing shorebird with ‘lipstick’, had been sighted earlier. We entered the barren construction site which had a lone worker and some vehicles. Our hopes dwindled when scan after scan produced only pipits. Just as we were about to leave, I gave the area one last look and noticed two ‘lumps’ sticking out of the sand. A quick burst of shutters and a jubilant smile

formed on my face when I examined the captured images. Then I laughed in uncontained excitement – Pratincole! I crawled towards the pair to confirm their identity, bear hugging the ground while enduring the pain of dirt grinding on my flesh. It turned out that even weird places like a construction site could hold birding gems.

1 MAY 2022  
*Feasting at the Patagonia Picnic Table*

The boardwalk at Pulau Ubin’s Chek Jawa is the unofficial gateway between Singapore’s and Malaysia’s avifauna – our very own Patagonia Picnic Table. This describes the phenomenon where a rare bird is spotted, pulling twitchers to the area, who in turn discover more and more rarities. In the past, avian rarities from Malaysia have made the sea crossing to Chek Jawa, attracting hordes of birders. Today was such a day. Hundreds of bird photographers lined the narrow path, all pointing their lenses at a particular tree. We were there for the mega tick of the Scarlet-breasted Flowerpecker (*Prionochilus thoracicus*).

For some reason, this bird detested my presence. On multiple tries, it had always appeared the day after I visited. As we waited under the sizzling sun all morning with noon fast approaching, I was dismayed that today was going to be no different. Suddenly, a small bird launched itself from the said tree and zipped back inside. One of the photographers skillfully captured a shot. The bird was a yellow blob on his screen. I examined its distinct features and ran through the possibilities in my mind. I concluded that it could only be our target bird. At that moment, another birder exclaimed “bird out!” We scrambled for our equipment. I raised my binoculars and was rewarded with a tiny but beautiful prize.





4 SEPTEMBER 2022

## Sand Plover in a Storm

After May, birding activity almost ground to a halt with migrant birds returning north. Rarities appeared at a snail's pace, disappearing into thin air only after a day. My morning at Sungei Buloh Wetland Reserve was uneventful. However, when the message "Greater Sand Plover at Yishun Dam" came through, I was struck with a whirlwind of emotions.

Despite the ominous clouds, my mother rushed me to the site. When we pulled up, it was pouring. Nevertheless, I was determined to get the Sand Plover. I donned a comical yellow poncho and lugged my heavy camera, readying myself to face the rain and wind. A few other birders had already gathered. In fact, it was at this spot that I met the other Big Year birders – CN and Benjamin, making the occasion memorable.

Various species of Sand Plovers were in the distance. It was difficult to discern the subtle differences between them. As if on cue, a few birds flew closer and we managed to spot the Greater Sand Plover (*Charadrius leschenaultii*) amongst them – yellowish legs, thick-bill and larger in size than the others. We savoured our moment of victory, unperturbed by the storm raging around us.



18 SEPTEMBER 2022

## For Want of a Wagtail

Based on data trends from eBird and Singapore Birds Project, Forest Wagtails (*Dendronanthus indicus*) should be arriving in Singapore around this time, enroute to their wintering grounds further south. However, nobody had reported any sighting from the famous wagtail roost in Yishun housing estate. The alternative was to hope for an encounter at Rifle Range Link, which would necessitate a punishing hike at dawn.

The wagtails typically fly in to roost at 6.15 pm, giving me a window of 45 minutes to search for my target before nightfall at 7 pm. I methodically climbed blocks of flats to check every palm tree.

Taking a gamble, I decided to try for the bird in Yishun. The wagtails typically fly in to roost at 6.15 pm, giving me a window of 45 minutes to search for my target before nightfall at 7 pm. I methodically climbed blocks of flats to check every palm tree. After half an hour of scanning and sifting through hundreds of commoner Grey Wagtails (*Motacilla cinerea*), I felt my determination fading. Just when my patience was wearing thin, I found my proverbial needle in a haystack – an olive-green and white bird with con-

trasting black bib on its breast. Words could not quite capture the elation I felt.



15 OCTOBER 2022

## My Worst Day

I started the day optimistically at Tuas South, anticipating the addition of five year birds to my list. But this industrial district proved to be a maze full of obstacles. We walked around in circles until we stumbled upon a small discreet gate in an otherwise walled-off area. Peering through a gap, I spied what seemed like a wader wonderland lying just beyond, with Wood Sandpipers (*Tringa glareola*) flying everywhere. With some hesitation, I squeezed-crawled under the gate. Before me was a sandy area covered in mimosas and potholed with puddles, reminiscent of Neo Tiew Harvest Lane. I had dreamt of this place as a shorebird paradise, hosting treasures like dowitchers, knots and godwits – waders that had eluded me in the past. However, nothing of this sort was present. No stints or stilts, zilch. I only picked up one year bird – the Little Ringed Plover (*Charadrius dubius*). My hunger was not sated.

Then the blue sky turned a solemn black. It was as if my foul mood influenced the weather, willing it to unleash its divine fury. I desperately squirmed back under the gate. The rain came down in sheets. I ran for what felt like ages, with the sandy site seeming to stretch forever. Water streamed down my face in the greatest shower of my life. Then I heard a sharp clack and saw that my binoculars strap had snapped. I got down on my knees. The frame of my binoculars was sticking out of the sand, with the cover hanging by a thread and the lens broken. A multitude of emotions surged through me: anger, sadness, and a foreboding unease. Should I have stayed on in the rain? What if I had missed a stint?

Nonetheless, I bolted to the parking lot only to find it empty. My mother had abandoned the





spot to search for an alternative entry through the maze-like roads. I was flooded with a sense of hopelessness. I had no choice but to take shelter in a temporary toilet. I could barely breathe in the confined space and repulsive smell of the porta-potty. Everything was soaking wet. Even though my spectacles were slicked with condensation, I managed to submit my sole year bird onto the eBird platform.

6 NOVEMBER 2022  
 *Raptor Rapture*

Raptor migration season had started. But the going was tough. The previous days were filled with dips despite tolerating the heat for five hours straight. Any small dot in the sky would get me jumping onto my feet and racing to identify the bird of prey in question. More often than not, I was slapped in the face with the common Oriental Honey Buzzard (*Pernis ptilorhynchus*).

Today was different. Arriving at Henderson Waves at 9 am, the merciless sun was like a deadly laser, blasting down its immense heat. Beads of sweat trickled down my face as I struggled to make out a silhouette rising slowly from the tree line. This raptor had five short fingers, a thick mesial stripe, and a yellow eye ring. We unanimously raised our lenses to fire off our shots. Confusion filled the air. Some thought that it was the common Japanese Sparrowhawk (*Accipiter gularis*). Others were confident that it was the rarer Besra (*Accipiter virgatus*). Deep down, it looked like a sparrowhawk to me. But silently, I hoped for a Besra. What followed was an exciting rush of raptors. The appearance of an Eastern Marsh Harrier (*Circus spilonotus*) meant no more gruelling trips to Tuas for me. Other fantastic additions included a Common Kestrel (*Falco tinnunculus*) and a Jerdon's Baza (*Aviceda jerdoni*).

Afterwards, I went to my cousin's house at the Pinnacle@Duxton (a 50-storey apartment block) for dinner and to try for the Blue Rock Thrush (*Monticola solitarius*) that is sometimes seen here.



Two hours later, I left empty handed despite pacing eight kilometres around its rooftop garden. With a heavy heart, I joined my family for dinner. A ding from my phone brought a message confirming the mystery accipiter to be a Besra. I burst out in a paroxysm of ecstasy. My family could not understand what was happening. To them, my bird was but a dot in the sky. To me, it was a heavenly milestone.

23 NOVEMBER 2022  
 *One Last Desperate Push*

As the end of the year approached, I felt a sense of unease. I still had many birds to go. I was overwhelmed by the fear of not being able to finish in the top five. Most of my missing birds were waders, like the Black-tailed Godwit (*Limosa limosa*) that had eluded me by a day. Some of my targets showed themselves during the hours when I had to be in school.

To catch up with the competition, my friend Joshua and I planned for a full day trip to Pulau Ubin to sweep up the waders and search for the elusive Cinnamon-headed Green Pigeon (*Treron fulvicollis*). This involved an arduous and expensive journey involving boat rides and taxis. Having spent countless hours and hundreds of dollars so far, I was determined to not return home with yet another dreadful tale of a dip.

Given the dark clouds and booming thunder, the ferry terminal was deserted. To save ourselves from having to wait for 12 passengers to gather before the boatman would depart, Joshua and I chartered the boat in desperation. Joshua was thrilled to see a lone Lesser Crested Tern (*Thalasseus bengalensis*) and a few Greater Crested Terns (*Thalasseus bergii*) during the crossing. He joked that he managed to get two lifers on the cheap. A local pelagic trip to obtain the same birds would have cost 10 times more.

When we arrived at Ubin Living Lab where the pigeons are known to occur, the rain was pelting down furiously. We took shelter and felt a sense of despair. While awaiting the cessation of the downpour, we counted the passing swifts and swallows. Out of the blue, Joshua alerted me that two pigeons were headed our way. I thought nothing of it, feeling down from my misfortunes. My negativity melted away into hysterical screaming when Joshua shouted "CINNAMON-HEADED GREEN PIGEON!"

My hands shook with excitement as even with my naked eyes, I could make out the cinnamon hue. I felt a swelling of pride and satisfaction upon seeing the pigeons' pale green bodies and maroon backs through my binoculars as they zoomed past the shelter. I collapsed to the floor crying tears of joy while profusely thanking Joshua. Although we did not get photographs, this was easily the most memorable experience of the year. It relit the passion within and motivated me to push on.





28 DECEMBER 2022

## A Rocky Path to the Rock Thrush

With just four days to go, the countdown to the end of the year has never been this terrifying. This crazy chase around Singapore has given me many lifers. One species that was easy to see when I first started birding was still missing from my year list – the Blue Rock Thrush (*Monticola solitarius*). This saturated orange-and-blue thrush was seen once in September. But I had taken too long to get ready and missed it by a miserable three minutes. Many other attempts proved futile.

On this day, the rooftop garden in Pinnacle@Duxton was bustling with activity, with children playing tag, sightseers gawking at the vista, and runners pounding the two-kilometre track. My cousins and I started our patrol in search of the bird. We were the only ones with binoculars and cameras. We scanned the area for a drop of blue, but to no avail. Then we noticed an avian silhouette in the distance. I raised my binoculars, trembling with anxiety. It was only a dove. I sighed in exasperation, and let my cousins use my binoculars. Next to the dove, a smaller silhouette materialised. Its sleek bill piqued my interest. Peering through the eyepiece, my frustration melted away into glee as the Rock Thrush came into focus. I screamed and shouted at the top of my lungs until my throat was sore. I felt the judgmental stares and glares from passers-by. But I was unable to contain my joy. We ventured nearer until the bird was directly above us. What a triumph!

Curlew Sandpiper at Sungei Buloh Wetland Reserve on 30 October 2022.

YEAR  
BIRD  
#264



Black Kite at Kranji Marsh on 30 January 2022.

YEAR  
BIRD  
#132



31 DECEMBER 2022

## To Be Able to Sleep in Once Again

I had come to the final day of my Big Year. At Neo Tiew Road, swallows, swifts and swiftlets swooped about in their aerial quest for insects. As I watched them, my mind began to drift. I had spent an entire year focusing on tiny feathered creatures more than on my grades, but it was worth it. Every single trip was an adventure. I had learnt so much and made many friends. Importantly, I saw some of Southeast Asia's most gorgeous birds. I was overwhelmed by a sense of relief that come tomorrow, I could finally sleep in.

A shout from my friend brought me out of my reverie as a Sand Martin (*Riparia riparia*) flew erratically into view. However, there was no Siberian House Martin (*Delichon lagopodum*) in the swirling cloud of birds. Nonetheless, I enjoyed the spectacular sight of the acrobats in flight. Watching the sun set, I proudly declared with a tinge of sadness that my Big Year had come to an end.

Reflecting back, I have gained a deep appreciation for my parents. They would drop everything to send me to and from birding sites across Singapore. They stood by my side when I dipped or successfully twitched a bird. Without them, my year list would have been a far cry from what I had achieved – a stunning 284 species. I still cannot believe that I managed to see 82% of the birds recorded for 2022! I finished a respectable fourth position, after Lee Chien Nien (314 species), Benjamin Lee (299 species) and Vincent Yip (291 species). 🌱



**Kaeden Sim** is a 14-year-old student with a passion for birdwatching. He started birding in 2020 and has amassed a Singapore life list of 312 birds and a global list of 586 species. He hopes to see more of the world's unique and beautiful avifauna and contribute towards conserving them.



RAIN  
TREE

# Tree Upcycling *at* Alexandra Hospital

By TAN DINGXIANG *on behalf of Alexandra Hospital and NUS SkyTimber™*

Photos by NUS SKYTIMBER™ and ALEXANDRA HOSPITAL



**A**lexandra Hospital in Singapore is embarking on an exciting journey to expand operations and provide better care for patients in the Queenstown district. There will be new amenities on the Alexandra Road campus. The first structure slated to open in 2024 is a facility block. To construct this, the hospital team earmarked a viable plot within the grounds. In assessing its environmental impact, we identified 25 trees with girth exceeding one metre that would have to make way for the new structure.



**Some of the trees earmarked for upcycling included a Rain tree (facing page), a Jambu tree with a 4.7 m girth (left) and a Bodhi tree with a 4.4 m girth (top).**

Initially, we explored transplanting or retaining these trees. However, site walks and studies done in 2021 found that both options were not viable. The team was unwilling to simply chop them down. Thus upcycling was the best option to give them a new lease of life.

We partnered with SkyTimber from the National University of Singapore, a tropical renewable architecture design lab for design research on upcycling trees. Together, we examined the various options of repurposing timber to create good quality products.





**Compiled logs from seven of our Rain trees.**

In July 2022, timber from 17 of our trees were collected. They comprised nine raintrees, two jambu trees, two sea almond trees, two rosy trumpet trees, one rambutan tree, and one bodhi tree. We tasked Tat Hin Timber to reuse the material, with the aim of making items that would raise public awareness on sustainability, and enhance biophilic healing. Employing a tree-to-design approach, we sought to maximise the potential of each harvested tree. Likewise, we wanted to practice the principles of biophilic design when repurposing the timber, to aid in the psychological and physiological aspects of our patients' recovery. We found 14 biophilic patterns that could help with stress reduction, cognitive performance, emotion, and mood.

The team visited Tat Hin Timber's sawmill in October 2022 to inspect the condition of the 17 logs. We discussed transforming them into functional and decorative items, such as ceiling and column adornments, stage backdrops, log stools, tables and benches with Tat Hin's subsidiary Timber Actually. We visited again in January 2023 to watch the sawmill turn the timber into smaller parts like slats to get them ready for re-use.

Employing a tree-to-design approach, we sought to maximise the potential of each harvested tree.



**Wood obtained from our lone Bodhi tree.**



**Harvested logs were marked and secured, before being covered with canvas sheets to reduce damage and deterioration.**





Logs at Tat Hin Timber's sawmill awaiting a new lease of life.



The Alexandra Hospital team getting a briefing prior to the wood being worked.



Measuring the slats after cutting.



Slicing the log into thinner slats.

We discussed transforming the logs into functional and decorative items, such as ceiling and column adornments, stage backdrops, log stools, tables and benches with Tat Hin's subsidiary Timber Actually.

For the eight trees that were not suitable for upcycling, we moved the logs to a patch of green straddling the Rail Corridor in February 2023. They were placed along the bushy area, away from the trail. Returning to nature, the logs are now habitats for fauna and their nutrients will eventually be recycled back to the earth. Indeed, every little step counts in ensuring that the development of Alexandra Hospital is carried out in an environmentally-sustainable manner. 🌱



Examples of upcycled products from Timber Actually's catalogue.



Alexandra Hospital is a member of the National University Health System. Operating from the site of the former British Military Hospital, it will undergo expansion works to become the first Integrated General Hospital in the Queenstown district, redesigning healthcare while preserving its rich heritage.



SkyTimber™ was established at the National University of Singapore in 2013. It has since grown into an inter-disciplinary international design and research platform. Its goal is to create tropical renewable architecture, and promote symbiosis between sustainable forestry and renewable urbanism, to help mitigate global warming.

# Peace with Nature

By MORTEN STRANGE

The 460-page book *Peace with Nature* presents a beautiful collection of 50 essays by 59 contributors. I think it is safe to say that the book's editor and NSS Patron Professor Tommy Koh was the brain behind the project. In its conceptualisation and execution, he was greatly assisted by his co-editors Professor Lye Lin Heng and then President of Nature Society (Singapore) Dr Shawn Lum. As project partner, NSS is grateful that the three editors will generously donate their fees to the Society.

Publisher World Scientific and its desk editor Jiang Yulin were instrumental in putting the material together. Former Singapore President Halimah Yacob penned the book's foreword. Five of the chapters deal with birds, four focus on insects, and three are on mammals. Many of the other essays are on natural sites of conservation value in Singapore. There are numerous inspiring stories about how the protection of these sites was accomplished, such as the forest at Lower Peirce Reservoir, the mangroves and mudflats of Sungei Buloh, the marine wonderland of Chek Jawa and the entire 24-km green stretch of the Rail Corridor. The remaining chapters touch on nature conservation policies, legislation and strategies, including global warming issues and the role of civil society and business in conservation.

Some chapters have more than one writer. As a case in point, my wife Bee Choo Strange and I co-wrote the eight-page chapter on the Birds of Singapore. For each chapter, the writer(s) could include one visual with their submission. The list of writers reads like the who's who in Singapore's nature outreach and conservation scene. Contributors range from distinguished academics and civil servants to autodidactic volunteer enthusiasts like Bee Choo and myself.

In the same manner, the writing styles vary from personal and light-hearted to factual and technocratic. I think that this difference in topics and styles makes the book work. From colourful anecdotes of wild animal encounters in the rainforest to insightful accounts of how to set international policies or put a price on nature's environmental services, the book has it all.

The book was launched on 4 September 2023 at the National Library, graced by guest-of-honour Minister for National Development Desmond Lee.



“We have been waging war against nature for long enough. Going forward, we have to make peace with nature.”

PROFESSOR TOMMY KOH



At the book launch on 4 September 2023, Minister for National Development Desmond Lee is flanked by the book's editors Prof Tommy Koh and Prof Lye Lin Heng (in red jacket). Surrounding them are some of the 59 contributing writers. The book's third editor Dr Shawn Lum is on the far left (in blue shirt). Photo: Dr Vilma D'Rozario.



*Peace with Nature* costs \$36 for the soft cover edition. It is available at all major book stores in Singapore. For a limited time only, enjoy a 20% discount with the code 'NSS20' at <https://www.worldscientific.com/worldscibooks/10.1142/13561#t=aboutBook>. If you wish to order multiple copies, please contact World Scientific's Amy Chan (Tel: +65-6466 5775, Ext: 243 or [achan@wspc.com](mailto:achan@wspc.com)) for a bulk discount.



# UPCOMING ACTIVITIES

Compiled by **GLORIA SEOW**



## Applicable for all NSS Events




Participants have to be well on the day of the event, and must wear a mask if you are coughing or sneezing. NSS reserves the right to turn away those who are unwell.

14 October, 2 & 23 December 2023, Saturday

## NSS Rewilding Project


Open to the Public, Registration Needed

 Join the NSS Rewilding Project to make the Rail Corridor a greener place. Get involved every step of the way, from the manual processing of grass to weed clearance and the planting of native trees. We aim to restore a continuous canopy cover to the Rail Corridor for it to be a better conduit for plants and wildlife. Participants need to be physically fit, including being able to lift at least 10 kg of weight and withstand the hot sun. Time: 9 am to 12 pm. Venue: Rail Corridor opposite Jalan Bumbong. Please register at <https://forms.gle/KRqDWSnCDrsBCh1YA> for any of the dates offered. Contact Sylvia at HP: 9190 4849 for enquiries.

14 October 2023, Saturday

## Birdwatching at Sungei Buloh Wetland Reserve


Members Only, Registration Needed

 From the Visitor Centre, we will proceed towards the Wetland Centre. Expect to see resident birds such as sunbirds and kingfishers, as well as winter visitors like egrets and sandpipers. NSS President Dr Yeo Seng Beng will guide us. Time: 7.30 am to 10.30 am. Maximum: 12 participants. Please register at [www.tinyurl.com/NSSBgbirdwatching](http://www.tinyurl.com/NSSBgbirdwatching) by 11 October. Contact Ee Ling at [ellee1584@gmail.com](mailto:ellee1584@gmail.com) for enquiries.

21 October 2023, Saturday

## Butterfly Walk at Bukit Brown


Members Only, Registration Needed

 The 86 hectares of secondary forest and semi-open landscape at Bukit Brown cemetery was named after George Henry Brown, a British trader and proprietor at Collyer Quay in the 1850s. Join Dr Ngo Kang Min to search for butterfly species that feed on grasses and herbs such as the Blue Pansy and Striped Albatross, as well as forest-dependents like the Banded Line Blue and Horsfield's Baron. Time: 9 am to 12 pm. Please register at <https://tinyurl.com/nssbutterflywalk> by 13 October. Maximum: 20 participants. Contact Kerry at [kerry@nss.org.sg](mailto:kerry@nss.org.sg) for enquiries.

29 October 2023, Sunday

## Migratory Bird Walk at Dairy Farm Nature Park

Members Only, Registration Needed

 Over 80 species of migratory birds visit us each year. Singapore's location on the East Asian-Australasian Flyway means that many species are enroute to their wintering grounds further south. Join Dr Yong Ding

Li to learn about the flyway and seek out the migratory species that are forest specialists. Time: 7.30 am to 10.30 am. Maximum: 20 participants. Please register at [www.tinyurl.com/NSSBgbirdwatching](http://www.tinyurl.com/NSSBgbirdwatching) by 23 October. Contact Ee Ling at [ellee1584@gmail.com](mailto:ellee1584@gmail.com) for enquiries.

4 & 5 November 2023, Weekend

## 39<sup>th</sup> Singapore Bird Race


Open to the Public, Registration Needed

 The Singapore Bird Race promotes the appreciation, awareness and conservation of wild birds and biodiversity in Singapore. It is a source of scientific knowledge on the distribution and conservation status of endangered birds here. The data collected is used to guide national conservation assessments. Held annually since 1984, this citizen science event has been supported by main sponsor Mapletree Investments since 2019. Please register at <https://tinyurl.com/SBRIG23> by 1 October.

18 November 2023, Saturday

## 16<sup>th</sup> Raptor Watch

Open to the Public, Registration Needed

 In 2022's Raptor Watch, we recorded 450 raptors of 17 species. Will the Greater Spotted Eagle, Pied Harrier or Eastern Marsh Harrier show up again? Join us to help spot raptors and pick up ID tips from site leaders (listed below). Contact them for location and meeting details:

- **Lorong Halus Wetlands:**  
Tan Kok Hui – [kokhuitan@yahoo.co.uk](mailto:kokhuitan@yahoo.co.uk)
- **Jurong Lake Gardens:**  
John Spencer – [johnslp@yahoo.co.uk](mailto:johnslp@yahoo.co.uk)
- **Kent Ridge Park:**  
Alan OwYong – [alan.owyong@gmail.com](mailto:alan.owyong@gmail.com)
- **Telok Blangah Hill Park:**  
Lee Ee Ling – [ellee1584@gmail.com](mailto:ellee1584@gmail.com)
- **St. John's Island:**  
Veronica Foo – [veronfoo@gmail.com](mailto:veronfoo@gmail.com)
- **Tuas South:**  
Low Choon How – [lowchoonhow@gmail.com](mailto:lowchoonhow@gmail.com)
- **Pulau Ubin:**  
NParks and their volunteers

3 December 2023, Sunday

## Birdwatching at Kranji Marshes

Open to the Public, Registration Needed

 Join Yap Wee Jin to explore the core area of Kranji Marshes Nature Park. The paths and hides here offer excellent views across the freshwater marshes. Birding highlights include residents such as the Red-wattled Lapwing and Gray-headed Fish Eagle as well as winter visitors like the Common and Black-capped Kingfishers. Meet at Sungei Buloh Visitor Centre. A bus will ferry us to Turut Track. Time: 7.30 am to 11 am. Cost: \$15 per person (to cover transport cost). Maximum: 20 participants. Please register at [www.tinyurl.com/NSSBgbirdwatching2](http://www.tinyurl.com/NSSBgbirdwatching2) by 20 November. Contact Ee Ling at [ellee1584@gmail.com](mailto:ellee1584@gmail.com) for enquiries.

9 December 2023, Saturday

## Fun with Wildlife-Friendly Food Gardening & Composting

Open to the Public, Registration Needed

 Keen to start your own wildlife-friendly food garden from scratch? Have fun tending to your plant babies and watch them become delectable herbs, vegetables and fruits. If done right, your food garden will attract beneficial wildlife such as ladybugs, butterflies and birds. This holistic workshop, led by master gardener Andrew Tay, will include a tour of Sprout Hub's urban farms to look at food plants and how to grow them. There will also be live demonstrations covering soils, pots, organic fertilisers, herbal pesticides, sunlight, watering, methods to multiply your plants and compost making in a pot. Participants will pot up two food plants to take home, and receive free vegetable seeds and free plant cuttings. All materials provided. Wrapping up the workshop, Education Committee Vice Chair Gloria Seow will share her experience on 'Starting My Food Garden from Scratch and the Cool Wildlife It Attracts'. Time: 2 pm to 4 pm. Fee: \$48 per person (Adult/Child Age 7 & above); most of the fees will be donated to NSS. Maximum: 20 participants. Please register at <http://tinyurl.com/nsskidsevent> by 1 December. Contact Gloria at [gloria\\_seow@yahoo.com](mailto:gloria_seow@yahoo.com) for enquiries.

16 & 17 December 2023, Weekend

## Introduction to Insect Macrophotography Workshop

Members Only, Registration Needed

 Explore the world of insects through the lens of nature photographer and Butterfly and Insect Group Chair Mohamed Jusri. This workshop offers insights into capturing the hidden beauty of tiny creatures. Learn about essential gear, field techniques, and composition tips to improve your macrophotography. There will be an outdoor hands-on session to sharpen your skills and connect with fellow enthusiasts. The workshop is suitable for DSLR and digital camera users, but not intended for camera phone users. Beginners are welcome. Bring along your digital camera, flash, hat, small torchlight and water. You need to know how to access your camera's settings for aperture size, shutter speed and ISO. Materials will be provided for making a simple diffuser. Time/Venue: 16 Dec – 10 am to 12 pm at NSS Office and 17 Dec – 9 am to 11 am at Thomson Nature Park. Maximum: 10 participants. Cost: \$5 per person. Please register at <https://tinyurl.com/NSSInsectWorkshop> by 1 December. Contact Kerry at [kerry@nss.org.sg](mailto:kerry@nss.org.sg) for enquiries.

31 December 2023, Sunday

## Birdwatching at Gardens by the Bay

Members Only, Registration Needed

 Join Veronica Foo for one last birdwatching hurrah before the year ends. The water features and rich plant life at Gardens by the Bay have proven attractive to our local birds. Interesting sightings here include the Lesser Whistling Duck, Red-legged Crake and Stork-billed Kingfisher. This walk starts at Kingfisher Wetland in Satay by the Bay and ends at Marina Barrage. There is a chance of seeing migrants such as the Common Kingfisher, terns and waders. Bring along a pair of binoculars, hat, water and rain gear. Time: 7.30 am to 10.30 am. Maximum: 20 participants. Please register at [www.tinyurl.com/NSSBgbirdwatching3](http://www.tinyurl.com/NSSBgbirdwatching3) by 22 December. Contact Ee Ling at [ellee1584@gmail.com](mailto:ellee1584@gmail.com) for enquiries.

## MEMBERSHIP MATTERS

To become a NSS member or renew your membership, please visit: <https://tinyurl.com/BeAnNSSMember>



# Leaf a Mark in 2023

## Growing Knowledge to Cultivate Actions under NSS ESN

By MICHELLE HARIFF, NSS ESN Project Officer



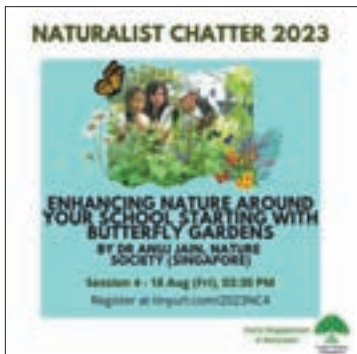
The NSS ESN 2<sup>nd</sup> Symposium 2023 would not have been possible without the support of Mandai Nature, Mandai Wildlife Group's Education team, and all participating schools. We thank you all.

KALEIDOSCOPE

NEWS AND HAPPENINGS AT NATURE SOCIETY (SINGAPORE)

Every Singaporean a Naturalist (ESN) is Nature Society Singapore's (NSS) flagship citizen science project and nature education programme. As ESN expands, we continue to foster a community of passionate student and teacher naturalists. They are capable of harnessing the knowledge gained through ESN to bring about meaningful actions in their own communities. Here are the exciting updates from the second half of 2023.

### ESN Naturalist Chatter 2023 #4: Enhancing Nature Around Your School Starting with Butterfly Gardens



Continuing with the theme of habitat fragmentation and habitat loss for this year's online speaker series, we had Dr Anuj Jain share about butterfly gardens and how to grow and maintain one in schools on 18 August 2023. Anuj is the founding Direc-

#### The Evolution of Symbiosis.

tor of bioSEA and former Chairperson of NSS Butterfly and Insect Group. In concluding 2023's quartet of talks, Anuj took our ESN student participants on a virtual tour of the Butterfly Trail @ Orchard Road. They learnt about important host and nectar plants

for various butterfly species, and how to structure a garden to meet the biological needs of these pollinators. We hope that ESN Naturalist Chatter will inspire schools to green up their campuses to enable habitat connectivity for local biodiversity.

### NSS ESN 2<sup>nd</sup> Symposium 2023

We held our second ESN Symposium at Mandai Bird Paradise Learning Centre on 2 November 2023. This annual symposium concludes another enriching and meaningful year for our participating schools. It serves as a platform for ESN schools to share their experiences and findings as well as celebrate their achievements and efforts.

Some 156 students and teachers from 21 schools attended the event, double the turnout in 2022. We were joined by guest-of-honour Dr Andie Ang who is Head of Primate Conservation and Singapore Programmes at Mandai Nature, as well as staff from Mandai Nature, Mandai Wildlife Group's Education team, and NSS's Executive Committee.

Assistant Vice President of Education at Mandai Wildlife Group June Chen gave a keynote address. She highlighted Mandai Wildlife Group's conservation work through their One Plan Approach and shared how ESN schools play a part in the big picture of nature and wildlife conservation. As of 1 November 2023, ESN participants have recorded 7,186 observations of 413 species on the iNaturalist platform. Of these, 1,482 observations were made in 2023 alone.





ESN participants have recorded 7,186 observations of 413 species on the iNaturalist platform since the programme started in 2018.

Next, we had five ESN schools take the stage for the School Initiative Sharing. First off was Northoaks Primary School with their video project on bird identification to raise awareness in their school and the wider Sembawang community. Nanyang Girls' High School followed with an illustrated children's book to educate readers on migratory and local birds in Singapore. Unity Secondary School then shared about their campus-wide iNaturalist Challenge to promote citizen science amongst their peers. Ending with a bang, My First Skool at 6 Segar Road (MFS) and Dunman Secondary School (DMN) spoke about their collaboration which took their 2022 projects to the next level. DMN students had worked with MFS teachers during MFS's

Family Day Bird Race 2023 to assist the pre-schoolers and their families and introduce them to an improved version of DMN's biodiversity game Avian Watch.

NSS Education Committee Chairperson Tan Beng Chiak facilitated the Question and Answer as well as School Reflection sessions. She encouraged schools to consider how these projects could be improved upon, as well as to embark on their own initiatives or collaborate with one another to foster community building and inspire collective action.

During the Appreciation and Award Ceremony, Dr Andie Ang recognised the outstanding achievements by participating schools in Urban Biodiversity Monitoring and presented the awards. In addition, President of NSS Dr Yeo Seng Beng handed out badges and certificates to students who had completed the Skills Achievement Programme.

The NSS ESN Working Group unveiled plans to roll out an Educators Network and a Youth Leaders Network. Dr Andie Ang closed the symposium with an inspiring speech that acknowledged the amazing efforts of our young naturalists and the importance of conservation.

ESN will be ending 2023 with an upcoming Teacher Training in late November for new educators joining our programme. In 2024, we are all set to unveil an exciting lineup of events. ESN will continue our unwavering commitment in nurturing hearts and minds for nature, inspiring action through the knowledge and skills we impart. 🌿



Highlights of the NSS ESN 2<sup>nd</sup> Symposium 2023.



# Record Turnout at the 39<sup>th</sup> Singapore Bird Race

By **TAN GIM CHEONG**, *Bird Group Chair*

The 39<sup>th</sup> Singapore Bird Race took place over the weekend of 4 and 5 November 2023. We had another year of record-breaking participation with more than 360 racers of all ages. They were spread across 108 teams in seven categories – Marathon, Sprint, Photographer, Novice, Family, Youth and Student (Primary). We had strong participation from various schools including Yumin Primary, Sembawang Primary, Beatty Secondary, Dunman Secondary, Woodlands Ring Secondary, Christchurch Secondary and Bedok South Secondary as well as small numbers from other schools.

## Race Highlights

Flagging off from Sungei Buloh Wetland Reserve, participants immediately started to log birds around them, with most noting a White-bellied Sea Eagle building a nest with sticks. In total, over 160 bird species were recorded, including more than 40 threatened species. Endangered and critically endangered birds seen included the Malaysian Plover, Great-billed Heron, Greater Green Leafbird and Straw-headed Bulbul.

Many teams encountered the mascots of this year's race – the Collared Kingfisher, Black-naped Oriole, and Blue-crown Hanging Parrot. Highlights of the race were the beautiful Oriental Dwarf Kingfisher, the rare Great Slaty Woodpecker, the scarce Black Bittern, the unusual Terek Sandpiper with its upturned bill, and the cryptic Savanna Nightjar.

Thanks to the bird-rich settings, the four winning teams in the Student (Primary) category managed to return at least 34 species. The top two teams in the Youth category were racing neck-to-neck with the winner netting 50 species, just one species ahead of the runner-up. Likewise, the competition between the first and second runner-ups in the Sprint category was stiff, with both teams returning 62 species. The tie was broken only by the time taken to clock the final (62<sup>nd</sup>) bird. Over in the Photographer category, the top two teams delivered an amazing performance, even edging past the Sprint category in terms of number of bird species chalked up. In the toughest Marathon category where participants raced for 24 hours, the pole position went to the team logging a stunning 119 species. We congratulate all winners. 🌿

**ACKNOWLEDGEMENTS** NSS is privileged to have Mapletree Investments as our main sponsor for the fifth consecutive year. Through their generous support, the race could be scaled up, enabling more and younger participants. We are grateful to our other event partners and sponsors including Birdlife International, NParks, eBird and Pansing. We thank our guest-of-honour Kan Shik Lum, independent non-executive Director at Mapletree Pan Asia Commercial Trust, for gracing the event. We also thank Group Chief Corporate Officer at Mapletree Wan Kwong Weng, NSS President Dr Yeo Seng Beng and Regional Director (Asia) at Birdlife International Vinayagan Dharmarajah for presenting the prizes. A big thank you to the organising committee, arbitrators and all volunteers. Last but not least, we extend our appreciation to all participants for making the race a huge success.



Over 360 participants took part in the Singapore Bird Race held on 4 and 5 November 2023.

## Bird Race Results

Position	Student Category	Species
1	Respect (Yumin Primary)	42
2	Perseverance (Yumin Primary)	39
3	Rainbow	36
4	Compassion (Yumin Primary)	34

Position	Youth Category	Species
1	Thunder Ducks (Dunman Secondary)	50
2	Chunky Monkey (Dunman Secondary)	49
3	Bee-eaters 4 (Beatty Secondary)	48
4	Bee-eaters 3 (Beatty Secondary)	45

Position	Family Category	Species
1	SSKY Birders	69
2	The Fun Falconerds	63
3	ClicKid	60
4	3 Gen Drongoes	53

Position	Novice Category	Species
1	Bob the Birder	58
2	Xtinct Tweets	57
3	Uric Acid	49
4	WCHB	48

Position	Photographer Category	Species
1	Meaningful Watching	77
2	Singapore Stringers	76
3	Cannot See Feet	56
4	Long-nailed Pair-o-feet	50

Position	Sprint Category	Species
1	Melodious Babblers	70
2	Chill Cuckoos Never Run	62
3	Great Argus	62
4	Birds-I-View	61

Position	Marathon Category	Species
1	Team Dippers	119
2	The Watchers	83
3	Birdens	78
4	Birdinging	72





# Snapshots of Past Events

By DR DAN KHONG



**1**  
**Rewilding Project (Tree Planting)**, 8 July 2023. Thirty-five volunteers led by Dr Ngo Kang Min, Sylvia Tan, Goh Si Guim and SUSS student leaders planted a total of 45 saplings along the Rail Corridor to restore the habitat to become a better conduit for wildlife. Their efforts were encouraged by the bubbly songs of the critically-endangered songbird, the Straw-headed bulbul (*Pycnonotus zeylanicus*). Photo: Sylvia Tan.



**2**  
**Plant Walk at Republic Polytechnic, Admiralty Park and Woodlands Waterfront Park**, 8 July 2023. Dr Sng Bee Bee, Sia Sin Wei and Keyu led a group of 15 participants on an interesting botanical stroll. One highlight was learning about the Hedgehog Rattan (*Calamus erinaceus*) used in making furniture and discipline sticks. Sin Wei shed insights on Admiralty Park's mangrove, grassland and secondary forest habitats while Keyu explained the various high-tech farming methods employed. Photo: Dr Sng Bee Bee.



**3**  
**Ramble to Historical Landmark Hill**, 8 July 2023. Guide Pandian Parthasarathy and three helpers led 17 members on a ramble to explore the historical landmark of Fort Canning. They had a great time learning about the area's wildlife and making new friends. Photo: Pandian Parthasarathy.



**4**  
**Birdwatching at Jurong Lake Gardens**, 15 July 2023. Led by Wing Chong and Lee Ee Ling, 21 birdwatchers saw or heard a total of 32 species in one productive morning. Some participants captured shots of the birds with their trusty cameras. These included the Brahminy Kite (*Haliastur indus*), Oriental Pied Hornbill (*Anthracoceros albirostris*) and White-rumped Munia (*Lonchura striata*). Photo: Lee Ee Ling.



**5**  
**Butterfly Walk at Upper Seletar Reservoir Park**, 22 July 2023. Abiel Neo and 16 butterfly enthusiasts found a good number of painted wings including the Chestnut Bob (*Lambrix salsala*) and Archduke (*Lexias pardalis dirteana*). In addition, the group spotted the Copper-cheeked Frog (*Chalcorana labialis*) and Oriental Whip Snake (*Ahaetulla prasina*). Photo: Abiel Neo.



**6**  
**NSS Rewilding Project (Grass Clearance)**, 22 July 2023. Facilitators Sylvia Tan and Lee Kwang Boon together with seven volunteers cleared a grass patch 8 m x 5 m in size, in preparation for rewilding on a later date. Photo: Sylvia Tan.



**7**  
**National Day Rail Corridor Ramble**, 5 August 2023. Group leader Pandian Parthasarathy had 17 participants join him in hiking part of the 24-km stretch of the Rail Corridor. This corridor is ecologically significant as it allows animals to move safely between several forest fragments. Photo: Pandian Parthasarathy.



**8**  
**NSS Rewilding Project (Grass Clearance)**, 5 August 2023. Project leads Sylvia Tan, Lee Kwang Boon, Goh Si Guim, Dr Ngo Kang Min and several SUSS student leaders, together with a group of volunteers, did an excellent job in clearing away a 10 m x 6.5 m patch of elephant grass to make way for the transplanting of saplings. Photo: Sylvia Tan.





# Snapshots of Past Events

By DR DAN KHONG

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**9** **Talk on Birding and Getting Started**, 5 August 2023. Twenty-six people keen on becoming birdwatchers attended the talk. It covered the topics of binoculars selection and usage, books suitable for beginners, clothing and fieldcraft, camera selection and basic bird photography settings. Participants were introduced to the common birds found in Singapore, where to see them, and how to identify them. Photo: Joe Lim.



**10** **Fun with Heritage Trees – Celebrating National Day**, 12 August 2023. Thirty plant lovers, including one family with toddler in tow, went on a bus tour to visit five heritage trees at five different sites. They were led by guides Bian Tan, Angie Ng and Tan Beng Chiak, and assisted by Dr Yap Von Bing and Anne Yap. Heritage tree highlights included the Lychee Tree (*Litchi chinensis*) and Kapok Tree (*Ceiba pentandra*). The group also stopped by the Japanese Cemetery Park and Hampstead Wetlands Park to admire the significant plantings. Some stayed back for an enjoyable lunch and fellowship at Newton Food Centre. Photo: Lim Tau Yuen.



**11** **Butterfly Walk at Bukit Gombak Park**, 19 August 2023. Twenty-three butterfly enthusiasts, some armed with cameras, found 28 species of butterflies and a few birds in a morning romp guided by Steven Chong and Om Prakash. Notable sightings included the Orange Emigrant (*Catopsilia scylla*), Julia Heliconia (*Dryas iulia*) and Common Tiger (*Danaus genutia*). Photo: Om Prakash.



**12** **Birdwatching for Beginners at Bishan-Ang Mo Kio Park**, 26 August 2023. Lee Ee Ling led 19 newbies to birding, on a walk to look for avian treasures. They visited a Purple Heron (*Ardea purpurea*) colony, where they could appreciate the plumage changes at various stages of maturity, from juveniles in the nest to adults out fishing. They also saw nesting Grey Herons (*Ardea cinerea*) and Striated Herons (*Butorides striata*). Photo: Ridhwan Ibrahim.



**13** **Talk: Bird Conservation in a Challenging Context – Lessons from the Middle East and the Caucasus**, 7 September 2023. Some 28 people gathered to hear from speaker Tomas Haraldsson, who shared about his experience in migratory bird conservation in the Middle East and Caucasus. This region is riddled with complex political issues and threats to biodiversity. It sits at the crossroads of two of the world's great migratory flyways used by millions of raptors and passerines as they travel between Asia and Africa. Photo: Joe Lim.



**14** **Butterfly Walk at Windsor Nature Park**, 16 September 2023. This group of 19 participants found 27 species of butterflies under the watchful eyes of guides Mohamed Jusri, Om Prakash, Amy Tsang, Dr Ngo Kang Min, and Steven Chong. Other sightings included the Treehugger Dragonfly (*Tyriobapta torrida*), Black-bearded Gliding Lizard (*Draco melanopogon*), and a harem of Olive-backed Sunbirds (*Cinnyris jugularis*) comprising one male and 19 females. Photo: Mohamed Jusri.



**15** **Birdwatching for Beginners at Bishan-Ang Mo Kio Park**, 23 September 2023. Binoculars and cameras saw plenty of action in a fun walk helmed by Lee Ee Ling and Lena Chow. The 20 participants were treated to the sight of breeding Purple, Grey and Striated Herons at their nests. There were also a few migrants including the Common Kingfisher (*Alcedo atthis*) and Asian Brown Flycatcher (*Muscicapa williamsoni*). Photo: Lena Chow.



**16** **Birdwatching at Satay by the Bay & Marina Barrage**, 30 September 2023. Initial wet weather did not deter this spirited group of 22 birders guided by Veronica Foo and Lim Kim Keang. They were rewarded with 32 species including the White Bellied Sea Eagle (*Haliaeetus leucogaster*), Ashy Tailorbird (*Orthotomus ruficeps*), and Cattle Egret (*Bubulcus ibis*). Photo: Veronica Foo.



**17** **Online Talk: Restoring Singapore's Coral Reefs**, 30 September 2023. This Zoom talk drew 20 participants where speaker and marine biologist at NUS's Tropical Marine Science Institute Dr Lionel Ng shared about the state and restoration of Singapore's coral reefs. Impacted by coastal urbanisation for over 50 years, Lionel also highlighted the ongoing research tackling the environmental challenges that corals face. The talk was hosted by Vice Chair of the Education Committee Gloria Seow and Dr Yong Ding Li. Photo: Gloria Seow.



# NATURE SOCIETY (SINGAPORE)

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**VISION** To be Singapore's leading advocate of biodiversity and habitats.

**MISSION** With our evidence-based approach and partnerships with agencies, peers, and corporates, we lead habitat and biodiversity conservation in Singapore and with partners in the region. Through engagement, education, advocacy, and research, we inspire and enable people to take action towards a sustainable and biodiverse planet.

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Nature Society (Singapore) or NSS is dedicated to the study, conservation and enjoyment of the biodiversity and natural heritage of Singapore, our neighbouring countries and the wider world. The Society is a non-profit, non-government organisation. Our members work with commitment and altruism to conserve Singapore's remaining nature areas such as forests, mangroves, wetlands and reefs.

NSS was formerly known as the Singapore Branch of the Malayan Nature Society (MNS), formed in 1954. In 1991, we became independent as Nature Society (Singapore). Both NSS and MNS continue to maintain strong links with each other.

NSS organises guided nature walks, horseshoe crab rescues, nature surveys, clean-ups, talks, exhibitions, and overseas nature trips. Going on an NSS outing allows you to meet people from all walks of life with a common passion!

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To join as a NSS member, please fill in this form <http://tinyurl.com/NSSmembershipform>. It allows you to settle the membership fees within the link. Once your membership is approved by the Executive Committee, you will receive *Nature Watch* and the e-newsletter for free, as well as be able to attend all member-only events.

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Singapore is the global stronghold for the charismatic Straw-headed Bulbul (*Pycnonotus zeylanicus*), like this parent and juvenile pair. NSS works to protect the last remaining natural habitat of this critically endangered species. Photo: Alan OwYong



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