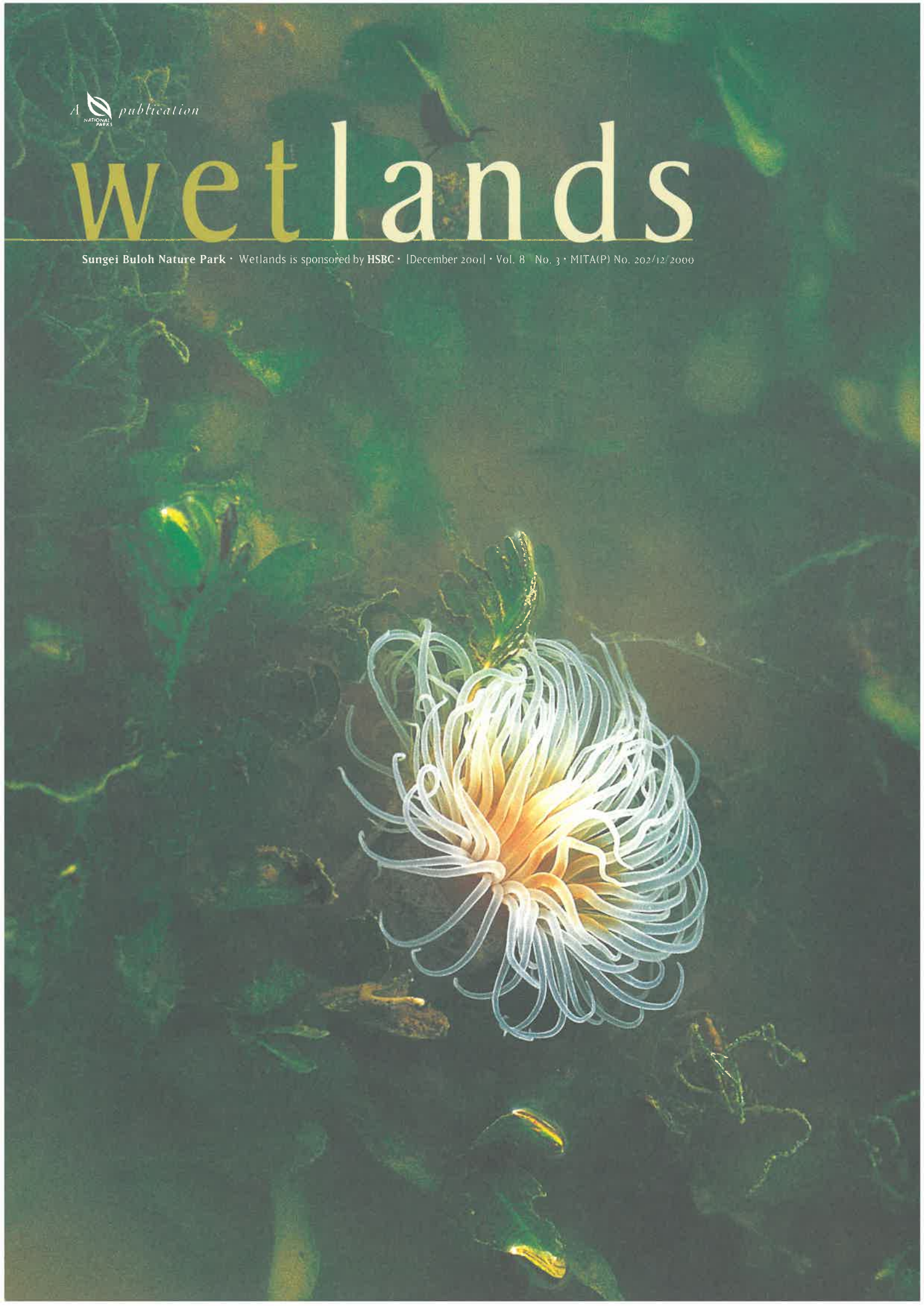

A NATIONAL PARKS publication

wetlands

Sungei Buloh Nature Park • Wetlands is sponsored by HSBC • [December 2001] • Vol. 8 No. 3 • MITA(P) No. 202/12/2000

Water is the driving force of all nature.

Leonardo Da Vinci

contents

Cover photo by Wong Tuan Wah
Tube Anemone at Chek Jawa.
Nikon F4s Nikkor 200mm, f4 micro, Fuji Velvia 50

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editorial Life as we know it could not have evolved without water and would die from the lack of it. It is the basic fundamental of being and all plants and animals need it to survive.

Raising "Aquatic Awareness" in this issue of Wetlands, this life water is depicted in its various essences revealing the richness it brings into our lives. We will look at another form of Wetland, how we can better understand water, what treasured gems it brings and what we can do to protect it.

The understanding lies in our own hands.

linda goh

Care-for-Nature
PROTECTING OUR LIVING RESOURCES

'Wetlands' is sponsored by HSBC under its Care-for-Nature programme.

HSBC's Care-for-Nature programme is dedicated to help conserve and protect our living resources in our natural environment and at the same time to generate awareness among the public to do likewise.

The sponsorship of 'Wetlands' is one such effort to help promote a better understanding and appreciation of wetland ecology such as Sungei Buloh and its importance to our natural landscape.

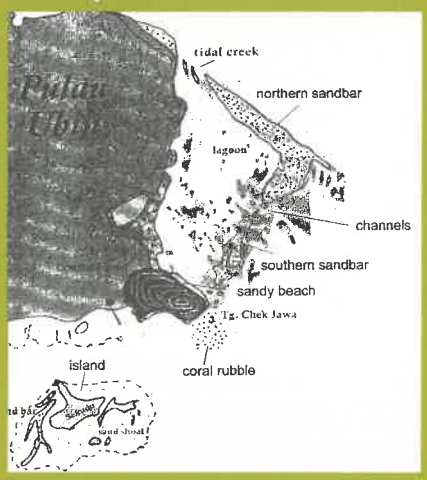
HSBC

Please call 530 1845 if you wish to know more about HSBC's Care-for-Nature Programme. Or write to us at:
HSBC, Public Affairs & Advertising, 21 Collyer Quay, HSBC Building, #14-01, Singapore 049320

Joseph Lai, Conservation Officer, introduces another form of wetland found in Singapore.

starfish

chek jawa's wet wonderland



base map by Teh Tiong Sa and Yap Hui Boon

What is a natural beach? Can one be found in Singapore? One answer might be: 'It should be a natural beach (not man-made) surrounded by forests and home to many kinds of animals and native plants. And the marine life should be rich; with starfishes, sea horses, crabs and fishes all thriving in a community amongst seaweed and sea grass beds that hug the sandy shore. A natural beach is a wilderness area full of "living wonders" waiting to be explored and discovered'. To a naturalist, the answer seems obvious. A natural beach is indeed one full of natural wonders. We do have one wilderness beach that was discovered recently in Singapore - Chek Jawa. Surprise! Surprise!

Chek Jawa - a natural haven comprising of six distinct habitats - coastal forest, mangrove, sandy beach, sandflats (lagoon), coral rubble and a tiny island (Pulau Sekudu or Frog Island) - quietly tucked away at the easternmost corner of Pulau Ubin. Since its discovery late last year, Chek Jawa has charmed and captivated all who dared ventured out along a two-hour (by foot) dirt track.

The list of wonders in Chek Jawa is incredible - stick insects, Flying Dragons, Oriental Pied Hornbills, Junglefowls, wild boars, otters, Seashore Nutmeg Trees, Sea Anemones, Seahorses, nudibranchs, sea cucumbers, Cow Fishes, octopuses, stingrays, starfishes, decorator crabs, shellfishes, sea grasses, seaweed, and sponges, etc. And the list is ever growing! During low tide, everyone seemed to see something that others did not, especially in the sandflat at the lagoon.

However, let me point out something that you might not 'see'. Operating quietly around the lagoon are two high and protective sandbars that trap and regulate water during low tide. They are indeed the backbones of the lagoon. Without them, the ecosystem within cannot survive (see sketch map) . Water exits through northern tidal creeks and southern channels, only to be slowed down by the marine vegetation, which acts as an important refuge for animals and a trap for nutrients. It is a miniature forest below water!

Like blood, water needs aeration to be life supporting. Water movement creates that as well as regulating temperature and salinity in the shallow pools. What cannot be 'seen' are also the millions of organisms in the sand and mud. These are tiny and microscopic, but highly significant in the chemistry and well-being of the lagoon. And there are the bigger marine animals - such as the sea horse, sea cucumber, tube anemone, sea pen, colourful sponges, etc which you don't need diving gear to see - just walk on the sandbars or around the 'touch-pools' within the lagoon during low tide! During your walks, you may even be greeted by a friendly resident wild-pig.

Chek Jawa is a unique nature heritage richly endowed in all things natural, located right at our own backyard. A midget in size, only about one square kilometre in area, but it packs a big punch in terms of biodiversity and having six natural habitats (communities) within this small area. Chek Jawa's is rare and has an identity and character of its own - it reveals and transforms itself into a natural WETwonderLAND during low tide. When the tide comes in, it is fully submerged - its secrets and treasures are again hidden, waiting yet to be discovered another day.

Chek Jawa is an open gym and classroom, and a perfect poet's corner for "body, mind and spirit" all in one. **Chek Jawa - a place in the heart** - yours truly.

text and illustrations by
Joseph Lai, Conservation Officer

aqua-tion for life

'Nothing on earth is so weak and yielding as water, but for breaking down the firm and strong it has no equal.'

- Lao Tzu

The wisdom of Lao Tzu, a 6th century Chinese philosopher, is as fresh as the morning dew that formed today. Water (Latin - aqua) is indeed ordinary yet extraordinary in nature. The strength of water is unmatched. All of the world's landscapes is sculptured by water in one way or other. Drops of water can split rocks with time. And where forested hills are denuded by man, upsetting the ecological balance of nature, we have observed from time and again, the force and fiery of devastating landslides and flash floods that belied the gentle rain that falls on our heads.

Similar scale of destruction is akin to the removal of mangrove by man also, causing massive coastal erosion, retreating shorelines and loss of natural barriers that had sheltered coastal communities from the lashing waves of tropical monsoon storms.

However, water is the very essence of life. Life flourishes on earth simply because we are blessed with an abundance of water. Without water there can be no life at all.

The Visitor Centre at Sungei Buloh Nature Park is nestled among several restive and picturesque ponds. On one side flows the wide expanse of Sungei Buloh Besar, our main river. Water features here are everywhere. The opportunity to reflect and to learn about water should not be missed. We cannot fully undertake nature conservation (of plants, animals and habitat) without recognizing water as a dynamic and contributing element in our living environment, especially in a wetland like Sungei Buloh.

the windows to learning are many...

Here is a list of things that you can discuss and reflect on regarding some of the fundamental roles that water plays in our equation for life here on earth. Rediscover for yourselves interesting facts and find out more about the undesirable impacts arising from abuse of natural processes of water.

The windows to learning are many and surprisingly easy to find if one has keen eyes to observe and learn at Sungei Buloh Nature Park....

Biology - Body Matters

Do you know that water is two-thirds of your body weight, ninety percent of the blood in your body is water, and that before birth you lived in water in the embryonic sac of your mother's womb? **Discuss** why living organisms need to consume water.

Physical Science - Standard Measures

Do you know that water had been used as a standard for the measurement of weight in the metric system, i.e. one-kilogram is equivalent to the mass of one liter of water? **Discuss** what other measurements use water as a standard.

Geography - Wetlands Wonders

Do you know that wetlands are areas where water is the primary factor controlling the environment and the associated plant and animal life? **Discuss** what areas are categorized as wetlands and where they can be found in Singapore, especially the mangroves and freshwater swamps.

Human Geography - Tanah Air (Homeland - in Malay language)

Do you know that the first civilizations arose in areas where water was a dominant feature, e.g. the Hwang Ho (Yellow River), Ganges, Indus, Nile and Amazon? **Discuss** why people chose to live near water, and who are the people who had lived in mangroves of Sungei Buloh in the past.

Ecology - Mudflat Challenges

Do you know that the life in the mudflat is very demanding, and the living organisms within the low and high tide marks have to cope with changes in temperatures, humidity, and salinity, etc.? **Discuss** how this is so, and what other challenges the organisms face.

Environmental Science - Drowning Islands

Do you know that ice at the Poles is melting gradually and increasing in the sea levels around the world, and that some low islands are in danger of disappearing under the sea? **Discuss** a hypothetical question: In what way will Sungei Buloh be affected if the old Causeway is removed for a clear water passage through Johore Straits?

Agricultural Science - Precious Rice

Do you know that the rice we eat grows in water, and that rice is a grass? **Discuss** about rice cultivation, find out where we get our supply from, and plan a trip to see paddy fields and water irrigation channels in a neighbouring country.

Anthropology - Arts & Culture

Do you know what is the common medium in four of the finest art forms in Chinese culture, namely, Chinese painting, calligraphy, ceramics and tea drinking? Water, of course! **Discuss** about local or East Asian art and cultures where water plays an important role.

where the water meets the lands

by Ramakrishnan RK,
Assistant Park Officer

For thousand of years, humans have depended on the wetlands for their survival. Most of the great ancient civilizations, such as those of Egypt, India, and Mesopotamia depended on the wetlands around their great rivers for their food.

When these areas were exhausted through over cultivation, many of these great empires also failed. Even without human involvement, wetlands is one of the most productive natural sources of food in the world. Coastal wetlands are often called 'aquatic farmlands' because of their importance as spawning grounds for fish, crab, shrimps and edible shellfish, such as telesopuim, giant mud clam, nertia and green mussel.

Some species caught and recorded during the prawn harvesting demonstration.

	Name:	Size:
1.	Common Tilapia (*Oreochromis mossanbicus*)	20 - 24cm
2.	Green Chromide (*Etroplus suratensis*)	4 - 26.5cm
3.	White Tamban (*Sardinella albella*)	7cm
4.	Indian Anchovy (*Stolephorus indicus*)	6cm
5.	Estuarine Catfish (*Mystus gulio*)	14.5-18cm
6.	Striped Eeltail Catfish (*Plotosus lineatus*)	18 - 21.5cm
7.	Estuarine Moray (*Gymnothorax tile*)	35 - 60.2cm
8.	Humpbacked Mangrove Cardinalfish (*Apogon hyalosoma*)	4.5 - 15cm
9.	Spotted Scat (*Scatophagidae argus*)	14 - 22cm
10.	Flathead Gudgeon (*Butis butis*)	2 - 12.5cm
11.	Snakehead Gudgeon (*Ophiocara porocephala*)	13cm
12.	Oriental Sole (*Brachirus orientalis*)	14cm
13.	Kops Glass Perchlet (*Ambassis kopsii*)	5.9 - 8.5cm
14.	Telkara Glass Perchlet (*Ambassis vachellii*)	2cm
15.	Spotted Green Puffer (*Tetraodon nigroviridis*)	3.7 - 8cm
16.	Longtail Tripodfish (*Tripodichthys blochii*)	5.5 -7.5cm
17.	Grey Mullet (F.Mulligidae)	22 - 28cm
18.	Red Terror (Festae Cichlid) orginally from South America	4.9 - 21.4cm

The early settlers to Singapore also depended on mangrove wetlands and river for their food and income. The rivers also attracts some special feathered and furry creatures. They come, not as passerby to admire the cool, inviting water, but as predators. The startling cry of the collared kingfisher may be the only sign that this feathery predator is nearby. And sometimes the splashing water and sharp cries of a family of smooth otters can be heard. This animal dives underwater for several minutes at a time to hunt for fish. Others like the herons; bitterns and waders depend on the puddle of water and exposed mud during low tide to feed on the array of organisms.

In this article, we will take a look at some of the interesting fish that you can observe at Sungei Buloh Nature Park. To locate these fish, one has to heed the tide that plays an important part in their presence along the river. At high tide, most fish move inward to the mangrove to keep away from other predator fish. As the tide retreats, they move out to the pocket of stream along the river and this would be a favourable time to watch them. Other key places you can watch them are near the sluice gate, platform, below the boardwalk and mainbridge.

Brachirus orientalis

Tripodichthys blochii

Apogon hyalosoma

Scatophagidae argus

Ambassis kopsii

by Ali Ibrahim,
Conservation Officer

dispersal by H_2O

Walking along the beach especially after high tide can be a learning experience if you were to ponder upon what the eye can spot - fruits, seeds and even seedlings adrift amongst the flotsam and jetsam. Have you ever wondered: 'Has this been going on for millions of years?', 'Where did this living assortment come from?' and 'How did they arrive?'.

It was Sir Isaac Newton who once said: "I don't know what I may seem to the world, but, as to myself, I seem to have been only like a boy playing on the sea shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, ..."

Yes, this regenerative cycle through dispersal has been going on since the dawn of time. These botanical gems on the beach originated not only from our own shores but from the neighbouring archipelago and even ocean-drifted ones. Let's take a look at the amazing mechanism involved.

Besides mangroves, water-dispersed vegetation is confined to the fringes of beaches and inland watercourses. With sufficient buoyancy and a long period of impermeability to water, their propagules can drift as far and no farther than is necessary to stay viable. The classic example is the coconut *(Cocos nucifera)* which can keep it afloat because its thick fibrous husk contains air. The fruit will travel a long distance, eventually ending up as a sprouted palm on some coast months later.

The buoyant propagules of all mangroves are adapted to dispersal by water currents. This period of floating may be as brief as four days, but much longer periods are more usual. The mangrove species belonging to the family of Rhizophoraceae have spongy hypocotyls with air-filled walls to make it light-weight. Seedlings contained in the fruits of Api-api *(Avicennia)* have dense, fibrous air-filled rootlets that keep themselves water-borne for a period of time. Leathery fruits of Perepat, Berembang and Gedabu *(Sonneratia)* with persistent calyces are enclosed by water impermeable walls. In addition, within the fleshy pulp their floatable seeds are protected by resistant seed coats. For any dispersed seedlings to get established, they have to find suitable substrates to grow in and be able to withstand wave action. With other seedlings, they simply develop right on the spot where they drop, within the ambit of their parent trees.

The term 'viviparous' is used to indicate the precocious germination and growth of the embryo while it is still enclosed by the fruit wall and while the fruit is still attached to the mother tree. This is an adaptation to ensure the seedling's higher chances of survival prior to its dispersal and precarious establishment in soft mud and tidal inundation. It is not surprising that in some instances, even

wind-dispersed fruits and seeds can be aided by water agent through the principle of floatation.

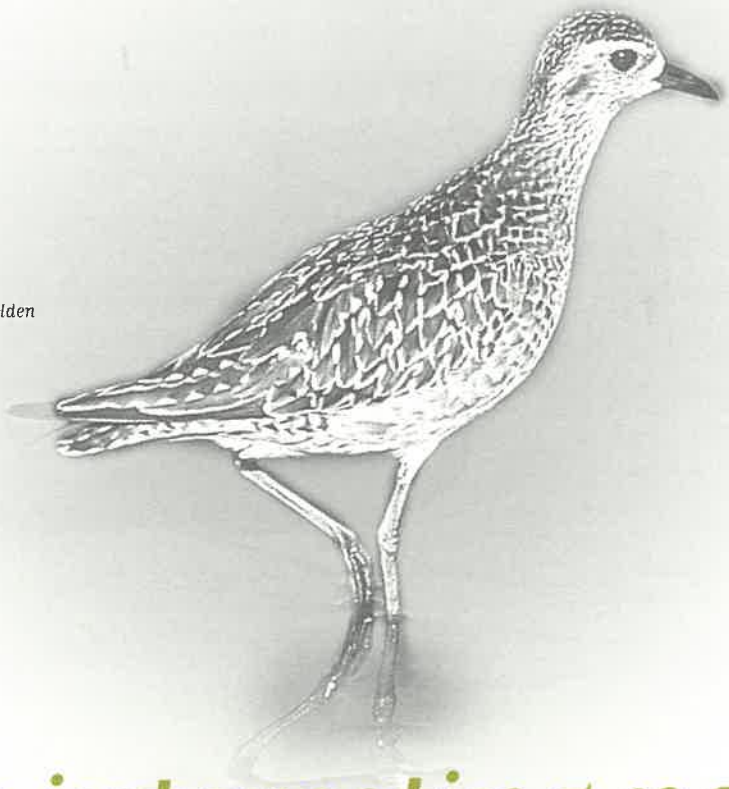
Amongst the colourful tapestry of living archive on the beach mentioned earlier were the curious but almost similar looking fibrous drupes of the Nipah *(Nypa fruticans)* and the Sea Screw-pine *(Pandanus tectorius)*. Fruits of Pong-pong *(Cerbera odollam)* having lost itheir red peel appeared like worn-out tennis balls. The almond-shaped fruits with lateral ridges belonging to the Ketapang *(Terminalia catappa)* are green to maroon when fresh but turning brown and woody when aged. The chocolate-brown and smooth Dungun *(Heritiera littoralis)* fruit actually looked like the hull of a boat with a small keel. The squarish turnip-looking fruit of Putat laut *(Barringtonia asiatica)* seemed most bizarre when compared to the rest of the scattered fruits. Finally, the community of angular and corky seeds of Nyireh *(Xylocarpus granatum)* were another odd puzzle when seen with several pieces of them side by side. Needless to say, the list goes further! But for the purpose of this article, only plants belonging to either the mangrove or beach habitats were mentioned.

(continued)" ....whilst the great ocean of truth lay all undiscovered before me." (Newton)

shape of fruits and seeds

(not to scale)

James Gan, Senior Conservation Officer, shares a significant discovery about the Pacific Golden Plover...



pacific golden plover

some interesting notes on the pacific golden plover

Among the commoner shorebirds that flock to Sungei Buloh Nature Park every year is the medium sized, short billed Pacific Golden Plover (Pluvialis fulva). Measuring between 23 and 26cm in length, weights of these birds have been known to range from 100g to as much as 192g. Those measured at the park during shorebird ringing sessions in the year 2000 and 2001 (to date) had ranged from 97g to 152g, with the heaviest weight recorded in April. This weight is due to the bird fattening up in preparation for the migratory journey back to the breeding areas in northern Russia.

A rather non-descript brownish bird, the adult plover exhibits two distinctive plumage in one year. In Sungei Buloh, the winter plumage of brown and some golden spangling on the wings is the one normally seen. However, during late July and August when the first plovers arrive at Sungei Buloh and especially in April when the last few birds fly off to their breeding areas, one can usually spot some individuals in full breeding plumage. These birds stand out because of the colouration of their plumage: a beautiful black from face to belly, a richer, brighter golden spangling on the wings and a prominent white border from the supercilium to the flanks.

pacific golden plover...

Facts at a Glance

Length	23 to 26cm
Weight	100g to 192g
Food	Molluscs, worms, rustaceans, insects, berries.
Breeding	Clutch has 4 eggs. Breed in June in northern Russia
Migration	Fly in large flocks & at night
Oldest Known Bird Ringed from Sungei Buloh	81 months (about 7 years)
Flying Feats	Can fly 4,500km non-stop!
Population wintering in East Asia	At least 100,000

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What do the plovers do when they are at the park? We have observed feeding and roosting behaviour. They can most often be seen on the mudflats pecking for worms, molluscs and crustaceans or standing on earth bunds to wait out the tide. Interestingly, at their breeding grounds, plovers are known to feed mostly on insects such as beetles and even berries such as crowberries.

Shorebird ringing sessions at Sungei Buloh have borne fruit as previously ringed birds have been recovered. The oldest retrap was one ringed on 12 Jan 1994 and caught 81 months (about 7 years) later on 12 Oct 2000. This record supports studies by researchers that these plovers are highly faithful to their wintering sites. It also suggests that Singapore, and in particular Sungei Buloh, is the ultimate winter destination for some of these birds.

A Pacific Golden Plover ringed at Sungei Buloh has also been recovered overseas. A bird ringed on 10 Jan 1996 was recovered on 22 May 1998 in the Russian province of Yakutia. This recovery provides clear evidence that by end May, birds are well on their way to the northern breeding areas of the tundra in Chukotskiy and Koryakskiy highlands. In fact, researchers have noted that the plover appears on the Siberian breeding grounds in early June. Hence the recovery of the plover in late May in Yakutia suggest that it was well on schedule to appear on the Siberian tundra in early June.

Upon reaching their breeding site, plovers stake out their territories. Breeding territories can be large - up to half a square kilometer per breeding pair. They are thought to be monogamous. Amazingly, it is known that male birds are faithful to the nest site, often breeding within 100m of the previous year's nest site and sometimes even in the same nest cup. Nests are simple and are shallow scrapes lined with lichen. Four eggs are usually laid with incubation taking 26 days. Upon hatching, young are able to fly in just over 22 days! That means that in just about 2 months, breeding can be completed and the birds can prepare to leave for the southward migration.

A general pattern of the numbers of Pacific Golden Plover in the Park throughout the year has emerged through regular shorebird census conducted by conservation staff from the park. The counting of shorebird numbers during the census in the year 2000 and 2001 has revealed day counts averaging 400 Pacific Golden Plovers in the Park during high tide between September and March. In early April, counts increased dramatically to 600 with records of maximum counts of up to 1,100 birds on certain days. By mid and end April, counts were down to 100 and decreased dramatically to zero in just a week or two. Between May and July, birds were absent from the park which is not unexpected as they would have returned to their breeding areas in northern Russia. With the continuation of regular shorebird census, the Park hopes to pick out additional meaningful patterns in the shorebird numbers over the years.

The field data, all of which were collected during regular shorebird ringing sessions, contributed a bit more towards the understanding of the biology of the migratory shorebirds. In particular, we have learnt more about the abundance and distribution of the Pacific Golden Plover in Sungei Buloh during the course of a year. The data collected are invaluable for the continued conservation management of Sungei Buloh Nature Park.

Comments or feedback? E-mail me at sbnp@pacific.net.sg

Step by step clearing the mangrove

2.7 tons of marine debris removed from the Buloh - Kranji mangrove in about 90 minutes, of which 90% is plastic! Patricia Phua, Park Ranger, reports on this amazing feat.

10th international coastal cleanup 2001
5th mangrove cleanup

The satisfaction

International Coastal Cleanup (ICC) is an annual event coordinated by the US Base Center for Marine Conservation (a non-profit organization) which involves over 90 countries. It aims to remove and collect data on the debris from the shorelines, waterways, and beaches of the world's lakes, rivers, and oceans. This information serves to educate the public on marine debris issues and to encourage positive changes by submission to governmental and international organizations that will reduce debris in waterways and enhance aquatic environments.

In Singapore

The Raffles Museum of Biodiversity Research (RMBR) at the National University of Singapore spearheaded and coordinated the clean-up of the mangrove section of the International Coastal Clean-Up Singapore (ICCS) 2001 with assistance from Sungei Buloh Nature Park, Nature Society Singapore and Singapore Amateur Radio Transmitting Society.

This year's event saw more than 250 students from Catholic High, Commonwealth Secondary School's Girl Guides, St. Andrew's Junior College, Tao Nan Marlin Sea Scouts, Singapore American School, Middle School and SAVE, Temasek Junior College, Victoria Junior College, Woodlands Ring Secondary School and Yusof Ishak Secondary School participating in the 5th mangrove clean-up.

A briefing session was conducted at NUS for all participants to explain the rationale of ICCS and the value of Singapore's biodiversity. To better explain the depth and beauty of our mangrove ecosystems, an introduction to the mangroves was conducted for participants at the Sungei Buloh Nature Park.

Action

The 10th International Coastal Cleanup 2001 event on 8th September heightened the climax of the morning with all enthusiastic participants assembled in teams and proceeding to the demarcation points at the Buloh-Kranji mangrove to kick-start the event. 32 students from Commonwealth Secondary were put under the charge of Sungei Buloh staff to concentrate on the work at the bund and the swamp area mudflat. Each team had 4 data recorders and twelve pickers.

The students were a committed bunch and with one purpose in mind - to pick up as much litter within the one hour. In that hour, more than 20 trash bags were collected and the items noted were mainly plastic bags, glass bottles, plastic containers, plastic sheets, styrofoam food containers and empty cans.

It was a good morning and everyone did their part well. The area targeted for cleanup was almost "swept clean" by these focused girl guides. The trash bags were carried out of the site, weighed and recorded into the data sheet to be submitted to the data manager for updating the web page. With that the climax for the event fizzled out gradually with jubilation of laughter and jokes and even pizzas to go around to sum up the day. What is left back at the swamp area mudflat were shoe prints and memories. Once again, the swamp area mudflat reclined back into echoing silence.

groups of pupils collating, analyzing and interpreting data gathered

young ecologists @ sungei buloh nature park

by Choo-Toh Get Ten,
Senior Education Officer

On 25th August 2001, Sungei Buloh Nature Park came under the scrutiny of 33 young ecologists from 8 schools. They were secondary two pupils guided by 17 teachers from The Chinese High, Catholic High, Anderson, Henderson, Hua Yi , New Town, Victoria and Yu Hua Secondary Schools. This ecological study was organised by the Educational Technology Division (ETD) of the Ministry of Education and supported by the schools, vendors of Geographical Information Systems (GIS) software and Geographical Positioning System (GPS), as well as our staff from the Education and Conservation Units.

We helped to design the activity worksheets and select suitable sites for the outdoor studies. We also offered our conference room and education workroom for the preparatory work and follow-up analysis. As the activity climaxed, the office walkway was transformed into an instant exhibition gallery for the research findings. We marveled at two excellent pictures taken of a rare green frog and its eggs, which we judged to be worthy of the 'rare sighting' awards given by ETD.

Guided by the teachers, ETD officials and the vendors, the pupils enthusiastically pursued the inquiry-based activity. They collected and recorded data using the high-tech GPS Geoexplorer, GIS, dataloggers, digital video and digital still cameras. As they explored the different habitats, many were fascinated by the rich array of plants and animals seen. When the data from different sites were merged and analysed, they further deepened their understanding of the inter-relationship of these organisms and their adaptation to the mangrove environment.

Young though they were, the pupils speedily picked up the IT know-how, and earnestly attempted the interpretation of the complex data gathered. In their feedback for the project, they offered dozens of favourable comments and bright ideas besides asking for better lunches and bigger workspace. What pleased the organisers most was that they enjoyed and found the use of IT tools and this authentic learning experience beneficial. They also found research work FUN and INTERESTING.

Sungei Buloh Nature Park had succeeded in leaving such wonderful and indelible memories in their young minds that many pupils expressed their hopes to revisit and study more about it. Its unique flora and fauna beckoned their return, and I have no doubt this will elicit response from our budding ecologists.

collecting and recording data using high-tech instruments

calender of events

complied by Halilah Ahmad, Education Officer

Nest Builders
Sat from 9.15am to 9.45am

Birds are like us in many ways. They built different kind of houses which we call nests for their young. In the wild, they make use of natural resources like grass, lallang, spider web, leaves, sticks around them to make their nests. Learn how they built their nest and have a go at it yourself.

Nature Detective
Daily

A challenging activity for the inquisitive mind, be a "Nature Detective" for the day and you will be rewarded with a Nature Detective certificate. Nature Hunt questions available at the ticketing counter.

Nature Guiding

Mangrove Mania
Every Saturday (except public holidays) at 9 am, 10 am, 3 pm and 4pm

Under the watchful eyes and expert guidance of our guides, discover the beauty of Park's unique flora and fauna of the mangrove habitat. This programme may be replaced with other interesting programmes that coincide with the respective time slots.

Endless Summer
August 2001 - March 2002

"T.T" is back to do his rounds. Be armed with the booklet "Endless Summer - The Story of a Seasoned Traveler" and begin your adventure with him on his migratory trip around Route One.

World Wetland Day
2 February 2001

Water, water everywhere, not a drop to drink? World wetland day is a day of celebration to mark the importance of water to all on Earth.

Clean and Green Week
4 November to 11 November 2001

Guided Walks
4 Nov at 9 am & 10 am, 7 Nov at 9 am & 3 pm

Come and grab this once a year opportunity to walk with expert bird guides and get to know more about the Park's migratory birds as well as resident flora and fauna.

Birdwatch 2001
4 November at 9 am to 11 am, 7 & 10 November at 9 am to 11 am & 3 pm to 5 pm

It's the time of the year where the mudflat cafes of Sungei Buloh Nature Park are fully operational! Flocks of migratory waders visit the Park's mudflats to replenish their fuel supply before setting off to their next destination. Simply watch them eat, clean & rest on the mudflats from the comfort of the Observation Hides.

Launch of the upgraded facilities at Sungei Buloh Nature Park.
10 November

The official opening of the revamped nature gallery, the reconstructed boardwalks and the newly built tower hide.

Launch of the Young Naturalists Programme
10 November

Embark on the journey of discovery into the wonders of nature. This fun-packed passport activity brings you closer to the wonders of nature and encourages a better understanding of our living things. The Young Naturalists programme is a joint project between the National Parks Board and HSBC.

At your pace and a passport in hand, participate in the listed activities to earn your Young Naturalists badges.

Launch of Commonwealth Secondary School Adopt-a-Park Scheme
10 November

The teachers and students of Commomwealth Secondary School proudly adopt the Sungei Buloh's Mangrove Boardwalk. Through this adoption, students will get learn about the unique mangrove ecosystem which they will share with their fellow friends and public.

Check the website at www.sbnp.org for more details.

an ode to a turtle

by James Gan, Senior Conservation Officer

You came across the seas from yonder far,
To Singapore a sunny isle,
But your strength ebbed away,
Upon achieving your D-day

The tear drops from your eyes,
Bespeak of untold adventures and trials
But all have dried, never again to appear on face,
Even as the scutes fall from your carapace

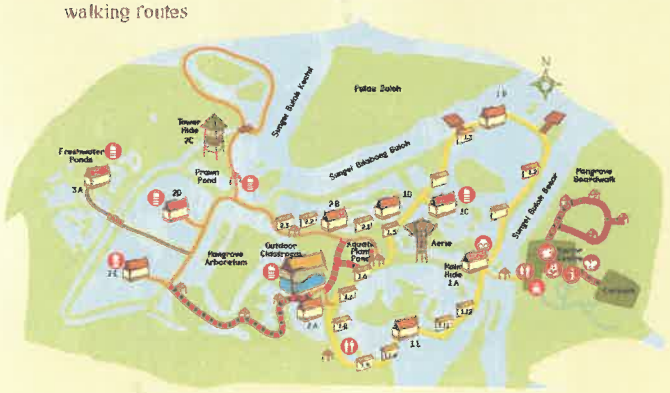
Current and tide propel your ark
To Sungei Buloh Nature Park
Only to get stuck among the roots
Of a massive Rhizophora

A shout and exclamation,
Recognition!
The staff extricated you, yes, even in death
Ignoring the scent of foul breath

Purification took all of ten days
A time for removal of all decay
Many creatures had their fill
Until it was time to pay the bill

Now you rest lean & mean
Your bones are white and clean
Teaching tools they have become
To show the conservation way for some

walking routes



park information

Opening Hours
Mondays to Saturdays
7.30am to 7.00pm

Sundays & Public Holidays
7.00am to 7.00pm

Admission
$1.00 per adult
$0.50 per child/
student/senior citizen

Audio-visual Show
Mondays to Saturdays
9.00am, 11.00am, 1.00pm,
3.00pm, 5.00pm.
Sundays and
Public Holidays
Hourly from
9.00am to 5.00pm

Getting There
Mondays to Saturdays:
Board service
TIBS 925 from
Kranji MRT Station.
Alight at Kranji Reservoir
carpark
for a 15 min walk
to the Park.
Sundays and
Public Holidays:
TIBS 925 will stop at the
Park entrance.

Sungei Buloh Nature Park
301 Neo Tiew Crescent
Singapore 718925
Tel: 794 1401
Fax: 793 7271

E-mail:
sbnp@pacific.net.sg

Website:
http://www.sbnp.org

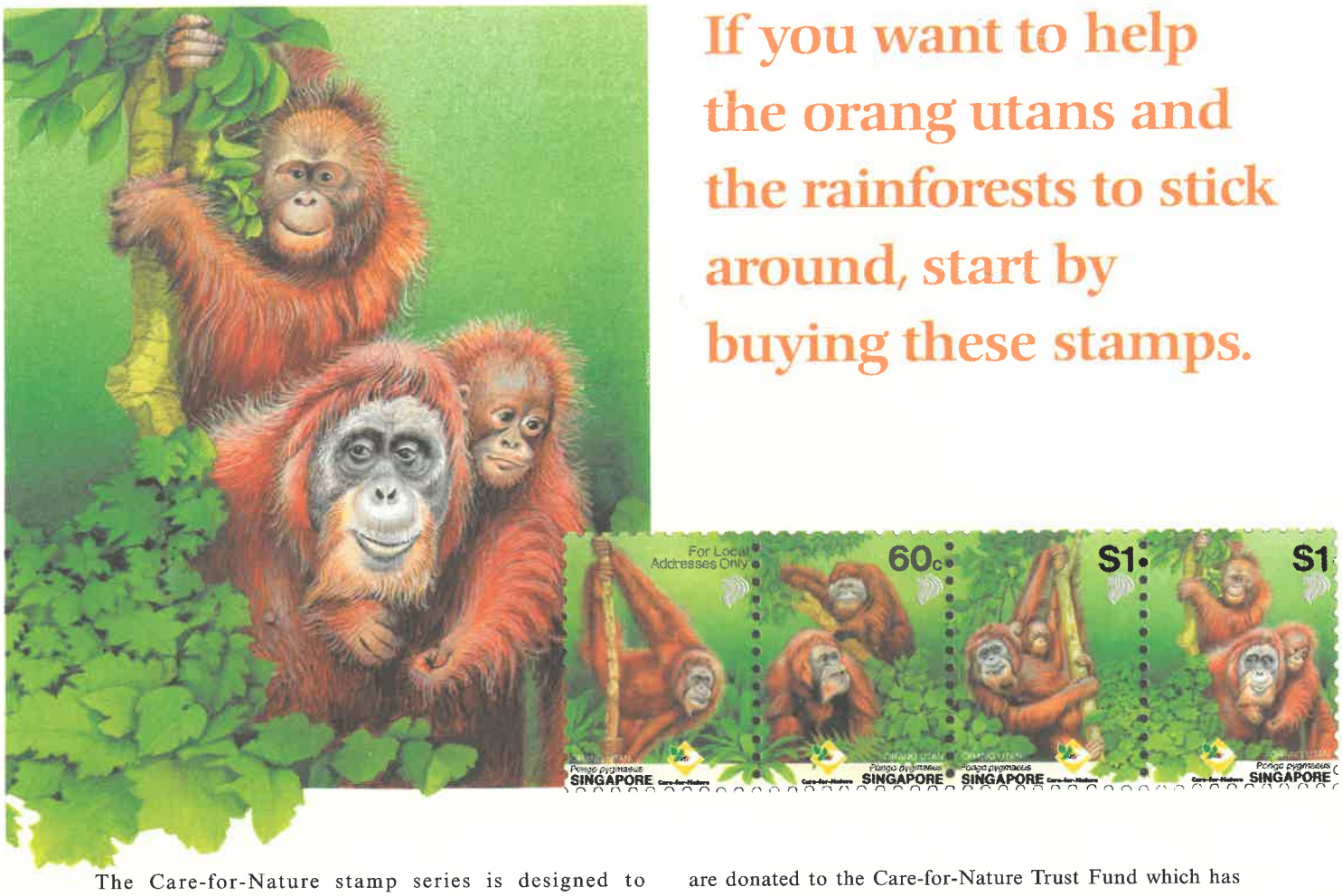
Visitor Centre Facilities
- Theatrette
- Cafeteria
- Nature Gallery
- Information
- Toilet
- Butterfly Trail

Park Facilities
- Boardwalk
- Route 1
- Route 2
- Route 3
- Aerie
- Tower Hide
- Screen
- Bird Observation Hide
- Outdoor Classroom
- Platform
- Shelter
- Binoculars
- Emergenc Walkie-talkie

approach routes for motorists

ORANG UTAN series

Care-for-Nature
PROTECTING OUR LIVING RESOURCES



If you want to help the orang utans and the rainforests to stick around, start by buying these stamps.

The Care-for-Nature stamp series is designed to promote public awareness and action in caring for our environment. And we are proud to continue our green efforts by devoting this year's issue to the orang utans. And who better than Ah Meng, the affable dame of the Singapore Zoological Gardens, to grace this issue and help raise the profile of her species. Privileged are we to have the opportunity to share a special association with these magnificent creatures with our adoption of Ah Meng in 1982.

Through the Orang Utan series, we hope to highlight the threat of extinction faced by this magnificent species and their natural habitat - the rainforests. By commissioning the beautifully illustrated Orang Utan series, we want to promote sensible management of our precious ecosystems.

As usual, proceeds from the sale of these covers and prints are donated to the Care-for-Nature Trust Fund which has been set up since 1991 to provide financial support for environmental conservation and educational projects in Singapore and the region. If you wish to do your part for a greener future, please support our latest endeavour.

Exclusively pre-cancelled with the first day of issue date-stamp and corporate postmark, the Care-for-Nature Collector's Cover is yours at only $9.90. For $68, you can own a special 4-in-1 stamp print depicting Ah Meng in different stages of her life. An unframed set of 4 limited edition stamp print collection is priced at $198 while a framed set is yours for $338.

From 5 September 2001, the Care-for-Nature Collector's Covers and Limited Stamp Print Collection are available at Public Affairs & Advertising Department (HSBC Building #14-01, Tel: 530 5100), all HSBC branches in Singapore and Singapore Post main branches.

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