

Wetlands ^{16.1}

Sungei Buloh Wetland Reserve



NParks' Publication

SUNGEI BULOH MASTER PLAN

AN UPDATE ON PHASE 1

By How Choon Beng, Senior Manager/Conservation (Conservation)

Mangroves are one of the richest and most valuable ecosystems. Yet, they are disappearing globally at an alarming rate. Many of these forests have been cleared or exploited for development. Otherwise, they are being polluted, eroded, or buried. Locally though, there is a piece of good news.

Despite our highly urbanised landscape, Singapore is ranked 6th out of nearly 100 countries for mangrove diversity. Offshore and on the main island, there are many parts of our shoreline that contain mangroves, but the most well-known would have to be Sungei Buloh Wetland Reserve (SBWR).

Since its opening in 1993 as a nature park, SBWR has gone on to be gazetted as a nature reserve, become a partner site in the East Asian-Australasian Flyway Partnership and achieve ASEAN Heritage Park status. It has also been a nexus for learning and cooperation, as students, families, researchers and corporations participate in the many programmes conducted here.

However, over the years, many opportunities and challenges have arisen in managing the reserve. To address them, the SBWR Masterplan was conceived. Phase 1 of this plan consists of works to protect sections of banks at SBWR from erosion.

1. Construction of a 50m offshore breakwater

A breakwater is being installed off the northeast corner of Pulau Buloh to reduce the effects of erosion caused by the waves. This consists of stones laid up to 2.9m above mean sea level, over a base made up of geotextiles (fabrics which can reinforce the structure) and concrete piles. The breakwater should create a deposition zone (an area where sediment collects naturally) behind it to eventually support mangrove growth. Mangrove saplings will be planted at the breakwater as well.



View of the work area, where a breakwater is being constructed.



The first step to building a breakwater – inserting piles into the sea bed.



Next comes the laying of rocks, up to 2.9m above sea level.

2. Restoration of existing shoreline using geotextiles and stones

Some sections of the shoreline had been eroded by currents and the trees were in danger of toppling over. Geotextile bags, filled with sediment, were placed in the undercut mangrove banks. These bags provide support and form a substrate for tree growth. Stones were also placed in front of the bags to provide additional protection. Below is a series of photos depicting the sites before and after the work.

Before



After



3. Improvement to existing sluice gates

As part of our reserve management, sluice gates are used in Pulau Buloh to control the water levels of our ponds. Some of these gates have been lowered due to wear and tear, and are occasionally flooded at high tides. Work was done to raise their levels. Additionally, some of the gate panels have become too weathered to keep out water completely, so these will be replaced.



The sluice gate was lowered due to wear and tear.



The level of the sluice gate has been raised after completion.



An aerial view of the Sungei Buloh Besar, along which the repairs to the sluice gates were made.

ART IN THE WETLANDS

THE WORK OF MR THAM PUI SAN @ SBWR

By Mendis Tan, Manager/Conservation (Outreach)

Every month, Mr Tham Pui San, one of SBWR's most passionate volunteers, conducts a free art lesson for children at SBWR. I first came into contact with him when my three children joined his art class and learnt how to paint pebbles from him. Not only was he gentle and exceptionally patient with children, his ideas in transforming pebbles into artwork make this activity easy and attractive to the young.



Mr Tham has volunteered at SBWR for more than eight years. An accomplished nature guide, he has been helping the Reserve with guided tours, running monthly art lessons and leading other meaningful activities for the public. Mr Tham even led a team of artists called Dabblers to decorate all the trash bins located at SBWR. His work is also evident in the Nature Cove, SBWR's library, where beautifully painted pebble designs are displayed. He produced all the paintings hanging on the walls of the Nature Cove, and always includes a note about his inspiration to paint. Reading about the background behind his pieces, one can tell that Mr Tham's passion in art is truly inspired by his love for

Head to his blog at <http://artinwetlands.wordpress.com/>, and you would be able to feast your eyes on his beautiful art pieces which include exquisite drawings and paintings.



Mr Tham's beautiful pebble artwork livens up the Nature Cove.



Mr Tham and his team decorated all the NParks dustbins at SBWR.

"I seek out the beauty of the mangrove in its subtle hues, changing light conditions and interesting shapes formed by its inhabitants – trees, mud lobsters, lichen, and moss. Putting them together cohesively to create aesthetic appeal and depicting my personal liking for a spot in the mangrove is my challenge". – Mr Tham Pui San

MALAYAN WATER MONITOR LIZARD SURVEY

MONITORING THE MONITOR

By David Li, Conservation Officer/SBWR

With a slow wave of its muscular tail, it propels itself silently through the waters towards the platform. The makeshift structure creaks and bends as the massive lizard hauls itself onboard. It casts a lazy glance at the newly arrived and gawking visitors, but decides to resume sunbathing. Armoured, taloned and able to grow to a length of 2 metres, it dwarfs all other inhabitants here. This is the Malayan Water Monitor (*Varanus salvator*), one of the largest lizards in the world and undisputed king of ponds at Visitor Centre.



Being opportunistic feeders, these reptiles use SBWR as a huge feeding ground. They eat anything that they can swallow, from marine creatures to birds and rodents. Although mostly thought of as scavengers, they are capable of sudden bursts of speed and are quite willing to hunt prey. But do not be worried – they tend to shy away from humans.

Last year, SBWR and volunteers attempted to estimate the number of these lizards in the Reserve. This was done via a transect survey (see Diagram 1), which essentially meant having participants walk through four fixed routes to record the number of lizards they see. Table 2 in the next page summarises the data collected so far.

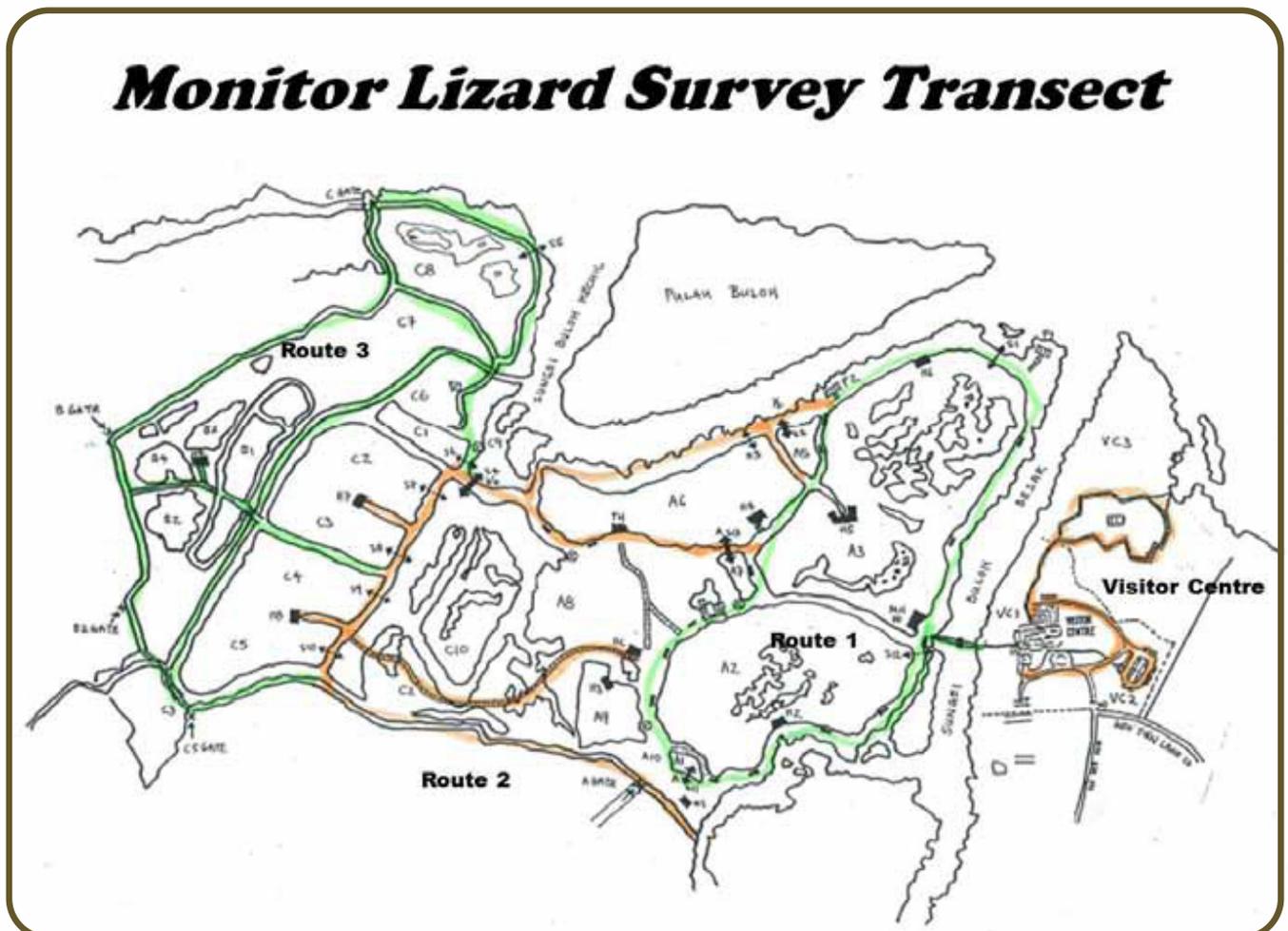


Diagram 1: Routes taken by participants in a transect survey.

Date	16-Dec-10	24-Jan-11	21-Mar-11	21-Apr-11	3-Aug-11	9-Nov-11
Time	0900-1100	1415-1600	1330-1530	1400-1600	1315-1445	0945-1135
Tide	High tide 2.7m at 7am	High tide at 3.4m at 10am	High tide 3.6m at 1pm	High tide 3.3m at 2pm	High tide 3.1m at 2pm	High tide 2.9m at 10am
Weather	cloudy	Sunny/raining later	Cloudy	Sunny	Sunny	Cloudy
VC-Small	4	3	3	1	1	0
VC-Medium	5	4	3	2	8	5
VC-Large	2	3	2	4	5	1
Route 1-Small	2	9	5	1	6	2
Route 1-Medium	2	8	3	2	5	8
Route 1-Large	3	6	3	2	2	0
Route 2-Small	1	11	2	3	6	3
Route 2-Medium	4	3	4	6	0	3
Route 2-Large	2	2	1	0	1	0
Route 3-Small	0	4	15	11	4	3
Route 3-Medium	0	1	1	4	8	5
Route 3-Large	0	0	0	0	2	2
<i>Sub-total Small</i>	7	27	25	16	17	8
<i>Sub-total Medium</i>	11	16	11	14	21	21
<i>Sub-total Large</i>	7	11	6	6	10	3
Grand Total	25	54	42	36	48	32

Table 2: Number of monitor lizards encountered by participants during the transect survey.

A total of six surveys were conducted over a period of one year. The size of the lizards encountered were also estimated and recorded. More surveys will be conducted in 2012 to accumulate more data before an analysis is made. Look out for our results in future newsletters!



TEACHERS GO WILD AT SBWR

By Mendis Tan, Manager/Conservation (Outreach)

"Hey, you have to help me thatch this roof!"
"You hold this side; I will start sewing."
"Wow, there are many straws being picked up today!"

Excited voices from teachers of Chua Chu Kang Primary School could be heard in SBWR on a sunny morning in September last year. They came specially to the Reserve for a staff learning day outing. Themed 'Discoverer Learner', the outing allowed the teachers to become 'students' for a day to discover possible outdoor learning experiential activities for their students at SBWR.



Mr Eddy Chua, Senior Teacher and project leader, teamed up with SBWR to plan and organise this self-discovery learning journey for the teachers. The school principal wanted them to experience the environment at SBWR so that they can plan science and biology lessons better.



Grouped into six teams, the teachers were assigned to complete five tasks located at several locations around the Reserve. With a nature guide accompanying them, they went on a flora and fauna walk, helped to pick up coastal rubbish and discovered one of many uses of the Nipah Palm in thatching roofs.

"It was a meaningful and rewarding learning experience for the teachers!" said Mr Foo, Principal of Chua Chu Kang Primary School.

Indeed, Chua Chu Kang Primary School is proud to be the first school to participate in a programme of this kind conducted by SBWR!



Visit our website at www.sbwr.org.sg for upcoming events and activities. For enquiries, please e-mail Mendis Tan at mendis_tan@nparks.gov.sg.

Sign up for the NParks' mailing list at www.nparks.gov.sg for updates on events and activities in other parks and gardens. Like us on www.facebook.com/nparksbuzz for fun biodiversity facts, exciting contests, and sneak peeks of events!