



wetlands

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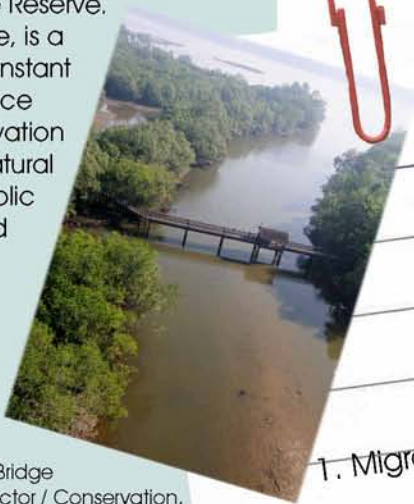
sungei buloh wetland reserve



The main bridge of Sungei Buloh Wetland Reserve is the only way visitors can walk into the Reserve. The bridge, to me, is a symbol of the constant struggle to balance between conservation of Singapore's natural heritage and public appreciation and education.

Text by Mendis Tan,
Editor eWetlands,
Sungei Buloh
Wetland Reserve

COVER PICTURE:
Aerial photo of Main Bridge
Wong Tuan Wah, Director / Conservation,
National Parks Board



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This issue's volunteer feature is Mr Law Hock Ling, one of our passionate volunteers at Sungei Buloh Wetland Reserve!

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Ms Halilah Ahmad, Outreach Officer,
Sungei Buloh Wetland Reserve

No.

Date

Upcoming Events

1. Migratory Bird Talk and Guided Tour

Date: 25 September 2010

Place: SBWR, Threatrette

Time: 9.30am to 11.30am

Details: The migratory bird season starts from September to March each year in Singapore. Mr Mendis Tan and Mr David Li will present a talk about the Migratory birds of the East Asian Australasian Flyway followed by a guided tour to the main birdwatching hide of Sungei Buloh Wetland Reserve. Join us as we celebrate the return of these beautiful and amazing birds to Sungei Buloh Wetland Reserve and other parts of Singapore.

Limited to 40 pax.

Call 6794 1401 or visit [www.w.sbwr.org.sg](http://www.sbwr.org.sg) for more details

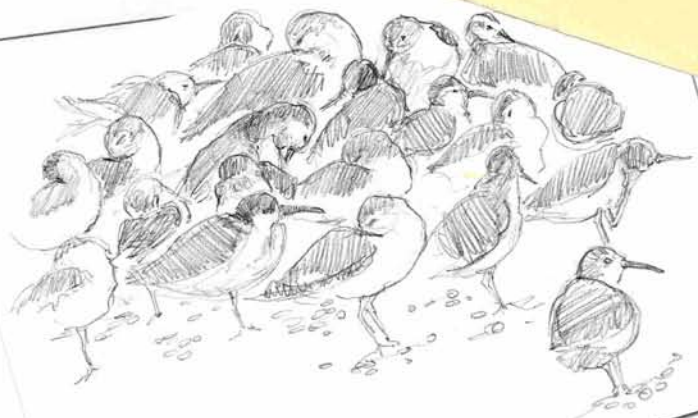
2. Free guided Nature Tour

Date: Every Saturday

Time: 9.30am and 3pm

Limited to a maximum of 20pax per time slot

Call 6794 1401 or visit www.sbwr.org.sg for more details



Unveiling the Sungei Buloh Master Plan

By Mendis Tan, Senior Outreach Officer, Sungei Buloh Wetland Reserve
Photos by Mendis Tan

The concept design for Sungei Buloh Wetland Reserve's Master Plan has been revealed! On 19 June 2010, Senior Minister of State for National Development and Education, Ms Grace Fu, launched this public exhibition. At an event attended by around 200 of Sungei Buloh's key stakeholders and friends.

In a land scarce country like Singapore, Sungei Buloh is a unique asset for conservation, education and recreation. The Sungei Buloh Master Plan aims to achieve these key objectives:

1. Ensuring a Living Wetland
2. Encouraging Bio-learning
3. Enhancing Sungei Buloh as a Destination with a Difference

Based on the findings of scientific studies and surveys, the designers created a concept that would achieve these three thrusts. This was certainly not an easy task. The new development had to ensure that the present rich biodiversity of Sungei Buloh Wetland Reserve and Kranji Nature Trail continues to thrive.



To ensure a living wetland, SBWR will be positioned as a centre for excellence in wetland management in ASEAN. Workshops and training courses to equip managers around the region will be conducted regularly to ensure the network of wetland sites around the region is strong.

The outreach to visitors and key stakeholders on learning about Singapore's natural heritage will be expanded to include comprehensive levels of learning and experience in wetlands learning and research.

In creating this new wetland park as well as protecting the reserve further, the Masterplan aims to enhance Sungei Buloh as a destination difference; adored by citizens and foreigners alike and recognized as a key international migratory birds site.



At the launch of the public exhibition, Ms Fu reiterated the importance of Sungei Buloh Wetland Reserve as a platform for students to conduct interactive experiments and have lessons on wetland and mangrove ecology.

Together with the Honourable Pehin Dato Haji Yahya, Minister of Industry and Primary Resources Brunei Darussalam and Mr Ng Lang, CEO of NParks, Ms Fu declared the exhibition officially open.



Ms Fu and the event's guests were taken on a guided tour through the Sungei Buloh Master Plan exhibition, followed by a short guided tour to the main hide and bridge of Sungei Buloh Wetland Reserve. All of them clearly enjoyed the sights and sounds of the experienced during the walk. This was followed by refreshments back at the event area.

Box story:

Another highlight of this event was the launch of 'Wetlands in a City'. This pictorial book on Sungei Buloh Wetland Reserve was published by the National Parks Board and produced by Dr Chua Ee Kiam, an ardent naturalist and writer. It features the history of the reserve along with a wealth of information and nature photos, many of which were contributed by volunteers. At the event, Dr Chua presented a signed copy of this publication, his labour of love, to Ms Fu. This book was exceedingly popular with friends and visitors of Sungei Buloh – more than two hundred copies of this book were sold on the weekend of 19 and 20 June!



We would like to thank Ms Grace Fu and the Honourable Pehin Dato Haji Yahya, Minister of Industry and Primary Resources Brunei Darussalam for making the Launch of the Sungei Buloh Master Plan Public Exhibition a memorable occasion for all who attended.



Mr Wong Tuan Wah, D/ICN and Dr Chua Ee Kiam seen here with Ms Grace Fu.



THE LIFE CYCLE OF THE AMAZING TWINKLING BEETLE

By Colleen Goh, Sungei Buloh Volunteer and Chan Su Hooi, Conservation Officer, Sungei Buloh Wetland Reserve
Photos by Colleen Goh

Fireflies have captured the imagination of people all over the world. NParks Conservation Officer Chan Su Hooi and Sungei Buloh Volunteer Colleen Goh have embarked on a scientific journey to study them. Here, we learn from them the life cycle of the *Pteroptyx valida*, a firefly species found in the mangroves.



1. The firefly starts its life as an egg. Shown here is a clump of six eggs.



2. After mating with the male, the eggs of the female are fertilised. This picture shows a female firefly laying eggs.

3. During the process of egg-laying, a small tube, called the ovipositor (ovi=egg, and positor= layer) emerges from the end of the female firefly's abdomen. It is a thin hollow tube, much like the hypodermic needles used by doctors to give injections. The ovipositor serves to transmit the eggs and to prepare a place for egg-laying.



4. After twelve to twenty days, the eggs will hatch into larvae that look like tiny worms. This larval stage lasts for about two to three months, during which the larva live underground or beneath the leaf litter. While in the larval stage, the firefly is basically an eating machine, feeding on snails. It eats as much as it can to store up energy for the next stage - the pupal stage.



5. Can you see the pair of menacing-looking mandibles on the larva? The larva uses these to inject powerful acidic juices into the prey to paralyse it and digest the body tissues. The larva then sucks out the dissolved body contents, leaving only an empty shell.



Fascinating Fact: Firefly larvae can detect the slime trail of a snail in order to track its prey.

6. The larva has a muscular appendage at the end of their abdomen, called the pygopodia. This strong muscle can retract completely into the abdomen or extend like fingers to help it move about. Working like a suction cup, it attaches the end of the larva to the surface so that the larva can use its abdominal muscles to move its body forward. It even helps the larva pull itself upright when it falls onto its back.



7. When it is ready to pupate, the larva builds an underground chamber. This little mud house will protect the pupa when it is in the vulnerable pupal stage.



8. The larva will moult one last time before entering the pupal stage. In this specimen, you can see the skin from its last moult, on the left.



9. It will stay in this stage for about five to seven days.





Fascinating Fact: The larva and the pupa also glow!

10. Scientists believe that the firefly pupa uses its luminescence as a signal to warn potential predators that it has defensive chemicals in its body that make it distasteful or toxic.

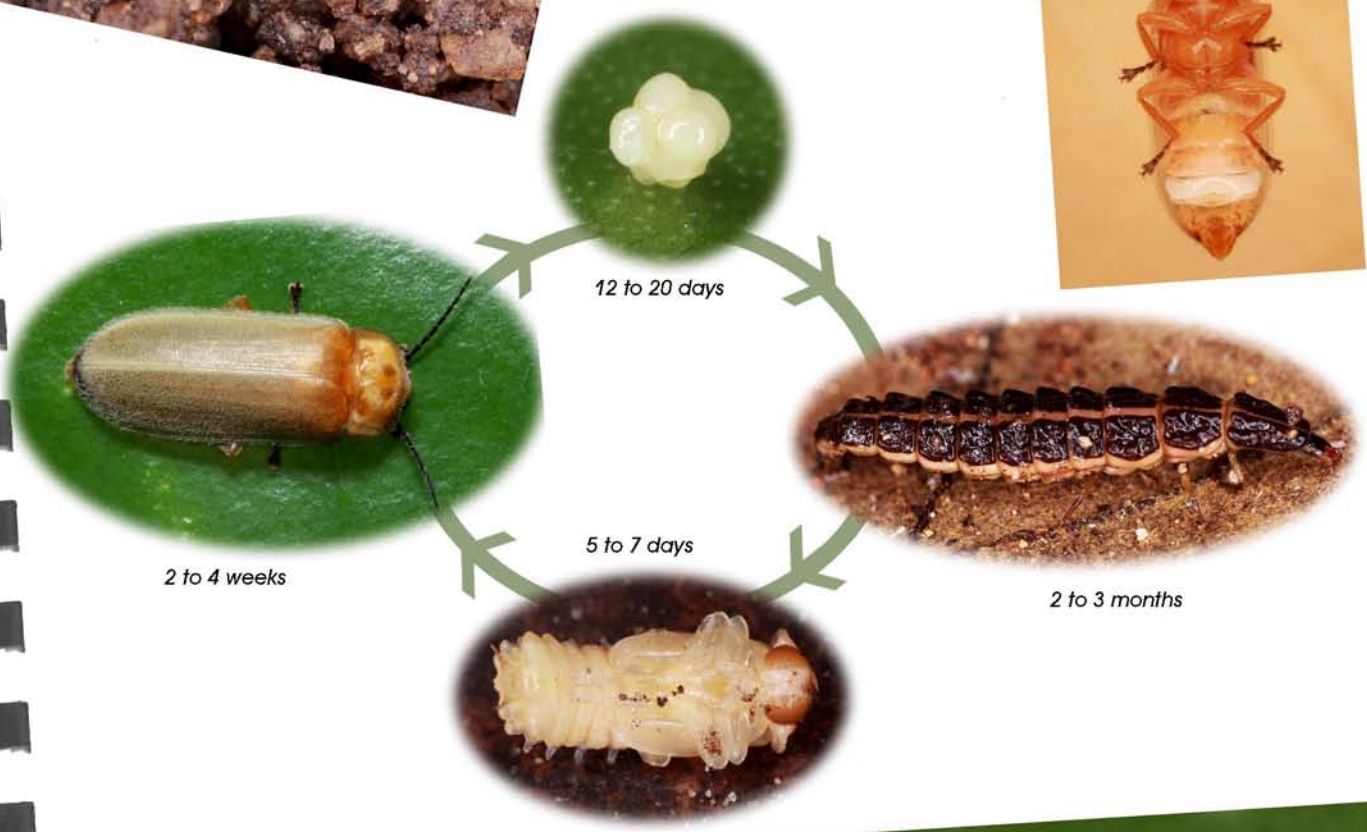
11. While in this stage, the pupa does not eat and hardly moves. Within the pupa, a transformation process is taking place. Cells are being broken down and rebuilt, so that what finally comes out is a fully formed firefly adult. This process of complete transformation is known as metamorphosis.

12. Before long, the metamorphosis is complete and a fully-formed adult will emerge from the underground hole.

13. A newly emerged female adult is shown here. She will live for about two to four weeks during which she will mate and lay eggs. After which, the firefly life cycle starts again.



This is a photo of a pupa about to metamorphose into an adult. You can see that its shape and colour have changed, and that it has already developed adult eyes and feelers.



My Experience Photographing Fireflies

By Colleen Goh, Sungei Buloh Volunteer
Photos by Colleen Goh

When Su Hooi asked me to help photograph fireflies for her survey, I knew it would be a challenge. I would be dealing with live moving specimens and some could be as small as 4mm! Then again, how many photographers get the chance to shoot these wonderful and elusive creatures?

My first task was to determine the right equipment to use. I decided that only the Canon MP-E 65 mm macro lens (paired with my Canon 1-D Mk III body) could do the job. This highly specialised macro lens allows me to photograph up to 5x magnification. In order to get the required magnification for close-up of firefly parts, I had to use this lens at maximum magnification and stack on 68mm of extension tubes. I also used the Canon 14EX Ring Flash that produces the even, shadowless lighting necessary for scientific photos.

To capture ventral shots, I used a Chinese antique insect holder which had a very thin glass through which I could shoot the ventral side of a firefly.



Antique box

I am glad to have had the chance to photograph these beautiful insects. I wish to thank Su Hooi (Conservation Officer, SBWR) and Mr Wong Tuan Wah (Director, Conservation) for giving me the opportunity to help in the survey.



See how tiny some larvae can be!



Flying firefly!



My gear



At work



Larva feeding on snail.

Who let the dogs out!

By Ang Hui Ping, Senior Conservation Officer, Sungei Buloh Wetland Reserve
Photos by Ang Hui Ping

Dogs are often quoted as Man's best friend. However, what happens when they are abandoned?

Most of these dogs are being looked after by well-meaning people who feeds them regularly out of compassion. However, did they ever consider the consequences of their action. Left on their own, these dogs can get wild and become a threat to people as well as our native wildlife. Who let the dogs out?

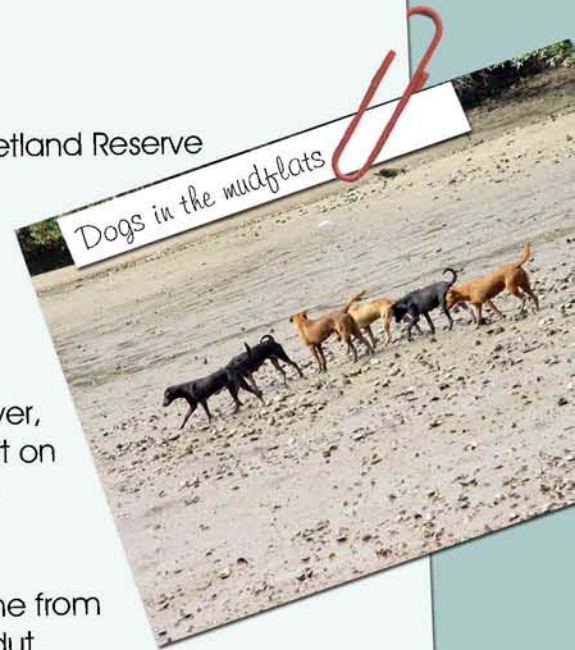
The stray dogs sighted in Sungei Buloh Wetland Reserve come from the surrounding areas, such as the nearby Kranji, Sungei Kadut industrial estate and farms. These dogs are usually either abandoned pets or descendants of domestic dogs gone wild, and they often appear similar to dog breeds that are the common mongrels.

Since dogs are pack animals by nature, they naturally form groups or packs in the wild. While one dog will not typically attack animals, several dogs in a pack can potentially chase down and corner smaller animals like squirrels, water monitor lizards, birds and otters; becoming a menace to both visitors and wildlife in Sungei Buloh Wetland Reserve.

At Sungei Buloh, dog traps were set up around selected areas within the reserve. The locations were selected based on tracking records of the entry and exit points of the stray dogs. These dog traps were set up and regularly inspected by SBWR staff. Trapping these stray dogs have proved to be very challenging. We have to move our traps regularly and also experiment with the different kinds of baits – from sausages, canned dog food, dog biscuits, whole chicken, mutton feet, duck necks and many more. Interestingly, it seems that duck neck works best among all. Due to the continuous effort of SBWR conservation staff, there have been several successful trappings. These trapped dogs were then handed over to AVA.

We have been working closely with the Agri-Food & Veterinary Authority of Singapore (AVA) to intensify the trapping of stray dogs and reducing their population around the vicinity of the reserve. Over the last three years, more than 50 stray dogs have been caught.

SBWR and AVA are constantly exploring different methods to reduce the stray dog population more effectively. We would also like to appeal to the public to exercise responsibility and not abandon their pet dogs and help us protect the unique flora and fauna of Sungei Buloh Wetland Reserve better.



Dogs in the mudflats



Dogs near a visitor hide

Volunteer Feature

By Mendis Tan, Senior Outreach Officer, Sungei Buloh Wetland Reserve



Name: Mr Law Hock Ling
Volunteer as:

1. Trainer for Volunteers on Mangroves and Marine Biodiversity at Sungei Buloh Wetland Reserve
2. Nature Guide.

Contributions:

1. Nature talks @Sungei Buloh – 'Mangroves, a web of love and hate relationships' & 'Treasures in our sea'.
2. Nature guiding @Sungei Buloh
3. Training of new guides

Mr Law is one of our newest volunteers. He joined Sungei Buloh Wetland Reserve in July 2009. Since then, he has already conducted numerous workshops for public visitors and volunteers. He is an engaging speaker and his passion for Environmental Conservation is always demonstrated during the activities he conducts. The staff and volunteers of Sungei Buloh Wetland Reserve have certainly benefited much from him.

Thank you, Hock Ling!

