Helping Pulau Ubin's Mangroves Regenerate

The mangrove forests on Pulau Ubin are an important part of the coastal zone, protecting the shoreline from erosion and serving as habitats for a wide range of wildlife. In the past, a few of these mangrove forests were previously converted to aquaculture areas and subsequently abandoned.

The Restore Ubin Mangroves (R.U.M.) initiative was conceived in 2014 by the Friends of Ubin Network (FUN), to restore mangroves in these areas. Supported by NParks, this ground-up initiative comprises concerned groups who have a shared passion for Ubin's mangroves, and work together to raise awareness on the importance of mangroves on the island and conduct research on rehabilitating them.

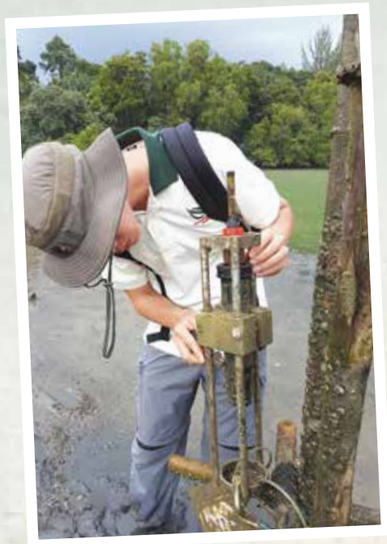
The Initiative brings together experts and volunteers from organisations, such as the Mangrove Lab at the Department of Geography, National University of Singapore (NUS), Nature Society (Singapore), Sea Angels and WildSingapore. The research collaboration between NParks and NUS Geography Department (on behalf of R.U.M.) started a survey in 2016 funded by NParks to understand how Ecological Mangrove Restoration (EMR) could be used to restore Pulau Ubin's mangroves, focusing mainly at Sungei Durian. EMR is a science-based approach which takes into consideration site characteristics (elevation, hydrodynamics) to recreate favourable physical environmental conditions that encourage natural regeneration of mangroves. The survey involved the mapping of abandoned aquaculture ponds on Pulau Ubin and the surrounding mangrove forests. The results confirmed that the elevation of the abandoned ponds was too low for most mangroves to grow. Even though the elevation was suitable for Sonneratia species to generate naturally at Sungei Durian, but due to a lack of *Sonneratia* mother trees in the vicinity, there was no natural source of *Sonneratia* seedlings that would help populate the mangroves.

The gauges that were installed to read tidal levels indicated that the tide cycle in the abandoned ponds followed expected natural tidal cycles. The site was not as water-logged as it was thought to be and should not have much impact on mangrove colonisation.

Bird surveys conducted by NParks recorded only 1 sighting of a shorebird feeding in the abandoned ponds during low tide hence restoration efforts would have minimal impact on the diversity of shorebirds.

Apart from the surveys, discussions on the effectiveness of EMR on Ubin's mangroves have been conducted, including a workshop hosted by NParks in February 2018 where Benjamin Brown, an expert on EMR, provided many insights. Some of the ideas generated during the workshop will be considered for implementation as efforts to restore the beauty of Ubin Mangroves continue.

Elevation studies being conducted at Sungei Durian
Photo credit: Ria Tan



Collecting tidal data from the tide gauge
Photo credit: Germaine Leng

Field trip to mangroves during the workshop
Photo credit: Germaine Leng

For more information on Pulau Ubin, visit **www.ubin.sg** or contact us at **nparks_pulau_ubin@nparks.gov.sg**

Ubin Tides

New happenings at Ubin Living Lab

Opened in February 2016, the Ubin Living Lab is an integrated facility for field studies, environmental education and community outreach on Pulau Ubin. It has been used by more than 6,000 participants from over 130 groups including researchers and students. With the completion of a water treatment system in June, toilet and shower facilities are now available, making it more conducive for students and researchers to stay over at Ubin for research and educational activities. The water is drawn from Ubin Quarry, treated by a Reverse-Osmosis plant and piped to the toilet block.

Another significant development is the completion of a mangrove arboretum, which showcases a collection of mangrove trees native to Singapore. The arboretum plays a major role in the conservation of Singapore's biodiversity through the propagating and planting of native mangrove species. Informative signs have been installed to introduce visitors to 34 'true' mangrove species that can be found at the arboretum.

Photo credit: Jacky Soh

NATIONAL PARKS | LET'S MAKE SINGAPORE OUR GARDEN

FRIENDS OF UBIN NETWORK

nparksbuzz
Share your love for nature with us at **#nparksbuzz**

Celebrating Ubin's Uniqueness through Pesta Ubin and Ubin Day

Since 2017, Pesta Ubin is a yearly event for Pulau Ubin volunteers and stakeholders to come together as one community to celebrate the island's timeless beauty, natural and cultural heritage. It is a four-week celebration with exciting and enlightening activities organised for and by the community. Open to the public, it gives visitors the opportunity to learn about life on the island, enjoy the island's unique charm and discover its wildlife.

Pesta Ubin took place from 26 May to 24 June this year, during which more than 50 activities were held, with 4,500 people participating. About 40 groups organised various activities that featured different aspects of Ubin, such as its landscape, heritage, kampung life and outdoor experience. Most activities were free, and they offered wholesome fun for the family, as they were focused on family fun, especially for children and youths.

Photo credit: Ria Tan

At the same time, participants and visitors were encouraged to follow the Ubin Way, a code of conduct to encourage ecologically and socially responsible behaviour on the island. For instance, to reduce waste as part of the Ubin Way, the 500 participants of the WalkRunBike event during Pesta Ubin brought their own containers to fill with water from dispensers provided by NParks.

Photo credit: Low Kok Sheng

Apart from outdoor activities, such as camping, kayaking, cycling, run and a clean-up drive, there were also night activities that offered a unique kampung experience to participants and screenings of 'Ubin Sayang', a film by Rachel Quek that discusses about the life of the people of Ubin and the birth of Restore Ubin Mangroves (R. U. M.) Initiative. Visitors could learn about wildlife conservation and the island's natural heritage through the various activity booths, workshops and talks organised during Pesta Ubin.

Pesta Ubin culminated in Ubin Day, which was graced by Minister for Trade and Industry Mr Chan Chun Sing, and Minister of Social and Family Development and Second Minister of National Development Mr Desmond Lee. Both ministers unveiled improved facilities at the Ubin Living Lab, a learning facility set up two years ago for education and research. They also visited the new mangrove arboretum that has a collection of 34 extant true mangrove species in Singapore.

On Ubin Day, Minister Desmond Lee also announced the record of five new species discovered on Pulau Ubin during surveys done by NParks and the research community last year. The new recorded species are the Little Stint shorebird, Long-winged Tomb Bat, Big-eared Pipistrelle Bat, Arrow Emperor dragonfly and Raccoon Pseudo-orb Weaver Spider.

Photo credit: Jacky Soh

Photo credit: Boo Shi

As part of the Ubin Day celebrations, a Chinese book entitled (情牵石岛 心系敏江) (translated as 'Bin Kiang: Our Heart and Soul', was launched. Produced by the community, the book is a compilation of stories of villagers living on the island after the Second World War. Minister Desmond Lee launched the book and distributed copies himself to both present and former Ubin villagers.

Join us next year for Pesta Ubin, from 27 May to 23 June 2019!

Restoration of Ah Ma Drink Stall

Madam Ong Ah Sam, a.k.a. Lai Huat Soh, an 80-year-old Pulau Ubin resident, sells drinks to thirsty cyclists and other day-trippers every weekend at Jelutong Bridge. Known as Ah Ma Drink Stall, her decades-old kampung drink stall is a popular pit-stop on the island. This famous drink stall was deteriorating in condition as ground settlement destabilized the structure.

Photo credit: National University Singapore

As part of efforts to revitalise Ubin while retaining its rustic character, the National University of Singapore (NUS) Architecture, Singapore Heritage Society, and Sea Angel worked together with NParks and MND to rebuild Ah Ma Drink Stall.

NUS Architecture students designed the new stall under the guidance of Associate Professor Tan Beng Kiang, taking in feedback from various stakeholders. The sensitive design incorporated features with sentimental and traditional value, as well as needs of users. Signboards made by Mdm Ong's late husband were reinstalled in prominent positions. The original spatial arrangement and architectural language of columns and pitched roof were also kept, and timber planks salvaged and reused as far as possible. As the site is next to a tidal mangrove river, the ground was raised and a timber deck provided to prevent flooding during high spring tides.

> "The journey towards the completion of the Ah Ma's Drink Stall has been an insightful one, which enabled us to develop an in depth understanding of the tectonics of wood as a material in construction. I am honoured to be granted an opportunity to contribute in keeping the natural heritage of Pulau Ubin, which is the last remaining semblance of a kampung in Singapore."

Zuo Yuchen, *Year 1 Student*

> "I recall the fond memories during the two-month construction of the stall, particularly working with Ubin residents."

Zhang Yiyue, *Year 1 student*

Photo credit: National University Singapore

While NParks handled the laying of the new foundation and main structural works, the students took on the rest of the construction works. Under the guidance of Philip Lim of Sea Angel, the students employed traditional timber construction methods with the help of villagers. MND and NParks also facilitated submissions to the various Government agencies for the construction works, and PH Consulting Pte Ltd provided pro-bono professional engineering services. A 16-panel Heritage Wall tells the story of the stall's rebuilding and the history of the area, with Restore Ubin Mangroves (R.U.M.) highlighting the natural heritage there.

Ah Ma Drink Stall was finally completed in early July, after two months of construction and officially re-opened on 23 September 2018.

> "I have come to realise that the result of this undertaking is not only about the rehabilitated stall itself, but also the synergy between Ubin residents and concerned groups."

Sim Wen Wei, *Year 2 Student*

Photo credit: Juhari