

## **Chek Jawa, Pulau Ubin: from research to education**

*The events that led to the announcement of the deferment of reclamation at Pulau Ubin in January 2002 saw the Raffles Museum of Biodiversity Research actively involved in both research and its resumed role in public education.*

N. Sivasothi, Research Officer, Raffles Museum of Biodiversity Research, The National University of Singapore. With photos by Alan Yeo. Published in the *Alumnus*, April 2002.

In early 2001, we received word from the National Parks Board that an area at the eastern end of Ubin was to be reclaimed by November. It was called Chek Jawa, and would the museum be interested in making a salvage collection?

Salvage collections are an attempt to provide a last physical record of a threatened ecosystem, to make the worst of a bad thing, to leave a scientific memory of the place. Unlike normal research collections which have specific targets, everything is collected and preserved. For years to come, international scientists will refer to these collections, as we do now.

With a history dating back to 1849, the Raffles Museum of Biodiversity Research holds many silent sentinels, animal specimens who bear witness to the changing landscapes of Singapore and Southeast Asia. Many specimens are casualties of fast changing world, from places that no longer exist, such as the freshwater swamps of Jurong and Paya Lebar, the coral reefs off Sentosa, the mangroves of Mandai Kechil or other parts of the region such as the peat swamp forests of Kuala Selangor. The work of discovery is a mad rush that can barely keep up with the fast disappearing habitats of Southeast Asia.

So when we hear of a “salvage collection”, it is with a partly resigned air that we set to work.

A preliminary collection was conducted at Chek Jawa in May, after which we were busy with the launch of the Public Gallery in June 2001. Subsequently with volunteer help, we conducted four intensive trips in July and August, during the early morning low tides. A former researcher with NUS provided us with lodging at the Ubin Lagoon Resort so we could trundle down to the site before sunrise. Making our way out to the sea edge in the dark, we would begin our work and move inland slowly.

The richness of the habitat surprised me. Initially it reminded me of Pantai Aceh Forest Reserve in Penang, where I had followed an enigmatic family of otters. But this had even more. Nestled together were mangrove, rocky shore, beach, coral rubble, a sea grass lagoon, mudflats, sand banks, and a coastal forest. Each habitat, defined by a specific set conditions, was host to a unique group of plants and animals adapted to that habitat, and combined, spoke of an impressive biodiversity.

Scientific interest aside, it was visually surprising. Crabs and fish were numerous and the area was peppered with colourful carpet and peacock anemones galore. Starfish, sand dollars and sea cucumbers appeared in large variety and number, shiny cowries were common, the sponge diversity splashed a myriad of colours on the coral rubble and the most extensive lawn of sea grass in the country was on display. Even rare treasures like octopi and sea horses availed themselves. We were simply not used to seeing this in Singapore!

Eventually, we submitted a technical report to the Nature Conservation Branch of the National Parks Board. They make internal confidential representation to government with our technical support, and in this case, reclamation plans had been published by government a decade earlier, so many felt this was a mere formality. Research on the material collected, would go on.

It is a reflection of the little hope that we felt when Ria Tan, a museum volunteer and NUSalumni suggested submitting an article to Asian Geographic that would essentially serve as an “obituary”! The editor of the magazine, Christopher Lee, held up his printing presses and after labouring for a day or two, the article was speedily published with Alan Yeo’s photos and the geographic map by Teh Tiong Sa & Yap Hui Boon. The museum’s role would usually ends there.

With the launch of the Public Gallery, we had announced the return of a traditional role of the museum in public education. A special display on Chek Jawa in the gallery was set up, but to field workers in the museum, this was woefully inadequate. There is no substitute for visiting a natural area, seeing the animals in their habitat and feeling the sea breeze and enjoying the sense of space. And the excellent opportunity offered by Chek Jawa as an outdoor classroom beckoned.

When I saw the Pulau Seringat reefs before their reclamation in August 1997, I felt great regret that very few Singaporeans had experienced the beauty of this reef. It remains to this day, the precious but private memory of very few. This time, we could do better, and with reclamation looming just months ahead, we announced through our electronic newsletter and webpage, *Habitatnews* <<http://habitatnews.nus.edu.sg>> the first RMBR Pubic Education Walk - a “last chance to see” Chek Jawa.

The Friends of the Raffles Museum guided a few hundred members of the public through the various habitats of Chek Jawa over two days. The volunteers, a fine assemblage of marine guides, were undergraduates, postgraduates, museum staff, NUS alumni and naturalists. All were identified by the bright orange caps they donned for this event!

Simultaneously, the media, organizations and individuals had been working toward the conservation for Chek Jawa by raising public awareness. The number of photo galleries on the marine life and ambience of Chek Jawa on *Habitatnews* kept increasing, and the newsletter kept everyone updated on the situation.

With reclamation now looming just a month away, it was decided to repeat the public walk in October. Recruiting a more than 20 guides this time, the invitation email was extended to all NUS Staff and their families as well.

It should not have been a surprise then, with the heightened awareness, more than 1,000 people took the ferry from Changi and boarded the vans to Chek Jawa those two days in October! Subaraj Rajathurai, a veteran local naturalist, suggested later that second evening, that this was the largest nature outing Singapore had witnessed.

The response was a source of both pleasant surprise and distress for the guides. We usually work with smaller numbers to avoid impact to the environment, and had to remind ourselves frequently that Chek Jawa would be buried the following month.

Of the public who came, many brought children, and a large number were on their first nature outing ever. Fascinated by waving tube feet of starfish, colourful sponges, flexible sea cucumbers, moulting crabs, snails laying eggs and of course the carpet anemones, they said they never expected to see and touch “Discovery Channel in their own backyard”.

We had avoided alerting the media, but recorded the public’s feelings on photo, video and archived email responses they sent us after the event. The surprisingly strong feeling prompted us to combine all the information with a proposal and some analysis, and submit the CDs, VCDs and printouts as feedback to the Ministry of National Development and relevant agencies.

Days earlier, Joseph Lai, a botanist in his private capacity, submitted a report on the biodiversity of Chek Jawa. Based on transect work he had organised with the help of a group of volunteers, they deposited voucher specimens at the Raffles Museum, wrote and incorporated other technical reports from the museum, naturalists and geographers. Like the museum’s feedback submission, the report ended similarly with a vision of a marine park at Chek Jawa.

It was already November, and reclamation was to begin. Yet Chek Jawa had somehow fuelled hope even at this 11<sup>th</sup> hour. It had awakened independent action by various members of society, for other letters and suggestions had apparently been submitted to the government as well. Until today, I still am unaware of all who contributed feedback to government in one way or another.

For a usually reticent Singapore, this was certainly a triumph of public involvement, at the very least.

Unbeknownst to many, the Minister for National Development, Mr Mah Bow Tan, had quietly visited Chek Jawa just before the public walks in October. Museum staff and volunteers aided as marine guides, in this and subsequent site visits hosted by the National Parks Board for ministers and other senior government officials. Their reaction usually seemed positive, and there appeared to be support for Chek Jawa from the comments of accompanying officials from the Urban Redevelopment Authority and the Housing and Development Board as well.

Yet while something was obviously afoot within government, we remained as much in the dark as the public. Not wanting to raise false hopes even amongst our volunteers, we kept silent about these visits.

Afternoon spring low tides coincided with many public holiday weekends, and despite the threat of monsoon rains, hundreds visited at each opportunity. It was an anarchic time and a roster of museum staff and volunteers operated on an informal basis, guiding while struggling to cope with a public unfamiliar with nature.

Private collectors, including novices who imagined marine creatures would survive in freshwater at home, were encouraged to leave the animals alone for others to see. Most listened, but the footsteps of the many thousands were beginning to take their toll on the habitat. And there was no sign of pre-reclamation activity.

On the afternoon of the 20<sup>th</sup> of December, I dragged my groggy self (I had succumbed to a bad flu) to the Ministry of National Development for a meeting between the Minister and various interested parties. We discovered that Chek Jawa had been granted a reprieve! It was not all over yet. Feedback was invited by year's end over reclamation scenarios for the southern coast of Pulau Ubin and help was requested to cope with public visits.

Soon after, we sat down with geographer Teh Tiong Sa, botanist Joseph Lai and others to provide a best-guess reaction to the scenarios with the limited time and data. There was a strong possibility that reclamation in the south would affect the coastal ecosystems of Chek Jawa, and this had to be evaluated. The Nature Society (Singapore), in the meantime, was also preparing a response.

At Chek Jawa itself, the Raffles Museum combined forces with National Parks Board (NParks) and the Nature Society (Singapore) to introduce a station guiding system to minimize the impact of visitors who usually walk all over the habitat. The guides, by now seasoned by many research and education trips, very quickly adapted to the system.

1,000 people came that last weekend, inspired by the news of the reprieve, despite newspaper articles discouraging visits to allow habitat recovery! Station guides, on the most active day, repeated their stories to about 25 groups over several hours in the rising tide! The masses kept to the route and the difference the system introduced was incredible. People were walking on an extremely small area, yet seeing much of the marine life they had heard about. On New Year's eve, NParks finally closed the access-way to vans, and things began to settle down.

On 2<sup>nd</sup> January, the final feedback document was submitted to MND, URA, HDB and NParks. Twelve days later, the Ministry announced that the reclamation at Ubin had been deferred, and the area was safe for the next 10 years at least! An unprecedented move, this was as surprising as the declaration last November: the mangroves at Sungei Buloh and the forest and rocky shores of Labrador are to be the first nature reserves in Singapore since independence.

The post-reprieve period has brought on a lot more work and the Raffles Museum remains actively involved by guiding and conducting workshops for new cohorts of marine guides from NParks, NUS, NSS and the public. Part of a working committee, the museum continues to consult prominent naturalists, volunteer guides and the public to provide feedback to the government over management plans of the area.

Public access is now limited to between 50-200 per session, and booking details are available at the NParks webpage <http://www.nparks.gov.sg> Bookings are saturated at present, and the best thing you can actually do for Chek Jawa at present is not to visit. This will allow the area to recover. Plans for the future envisage a greater variety of activity at the site, beyond the inter-tidal walks, and this will allow even more to visit with less restrictions.

There is certainly more to nature than Chek Jawa. The museum will thus plan other public education walks in different areas, and to involve greater participation in planning the event by students on attachment to the museum. They will thus learn how research is applied to public education, and develop skills during preparation: producing worksheets, researching content, coordinating guide training, developing a safety and communications plan, setting up and regularly maintaining webpages, making public announcements and handling registration, dealing with public queries, organizing still and video photography of the event, and providing a means to objectively assess the system adopted for the event.

In the meantime, staff and students are beginning to plan research projects at Chek Jawa. The preliminary surveys have revealed interesting finds that have excited local and international scientists. The information ultimately helps manage the complex ecosystem, of which little is known, and fuels the

education programme. The role of the museum has thus come a full circle back to research within a year. And it has certainly been a surprising one!