

“Kelip-Kelip” Heritage

The Kuala Selangor Fireflies Hope for the Future

Written by LAr. Amir Zuhairy Alias

Malaysia is home to a stunning array of ecosystems, including natural rainforests. However, the country is currently at risk of losing this unique natural resource if economic expansion is pursued without proper conservation initiatives to protect them. These rainforests hold a treasure trove of fauna, where their habitat is unique and delicate. One example of a unique insect that can be found here in the mangrove forest of Malaysia is the firefly, or better known locally as the “Kelip-Kelip”. How does “Kelip-Kelip” get its name? In Bahasa Malaysia, “kelip” means blink or flicker, just how the fireflies light up.



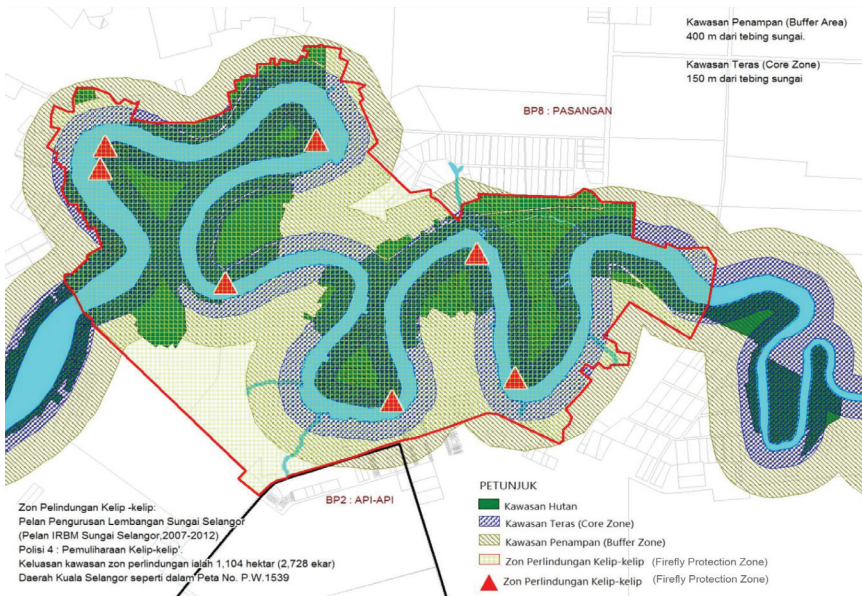
Imagine gliding on a sampan, which is a rowing boat, with the soft gurgling sound as the paddles dip into the water, and in the darkness of the night one can suddenly see a thousand twinkling lights in the trees. The lights then can be seen floating towards you as the boat ventures forward, as if the fireflies are welcoming you to their home. Just about an hour away from the city of Kuala Lumpur, we can find one of the most breath taking natural wonders of the world in Kuala Selangor. It is a sight to behold, seeing whole trees light up with the synchronised twinkling of the fireflies.



A Natural Heritage Full of Light

Fireflies are the messengers that whisper in the darkness, like stars in the night sky that provide a flicker of light to the vastness of the void. One of the most fascinating insects that can be seen abound in Malaysia at one time is now fast disappearing due to the country's rapid-paced development. Fortunately, there are still a few firefly's havens that are available to be visited in Selangor. The two locations where visitors can go to view these elusive insects are Kampung Kuantan and Kampung Bukit Belimbing in the district of Kuala Selangor that is well known for fireflies, situated about 56km from Kuala Lumpur. Fireflies are a type of insect from the beetle group and in Kampung Kuantan, the species that is most available is the *Pteroptyx tener* species. This species is an ecotourism attraction in Malaysia because tourists enjoy their synchronous flashing in large numbers on the mangrove trees and shrubs at night. This species of fireflies displays thousands of sparkling lights, incandescently flickering along the riverbank's trees. At times, they even sparkle in such perfect synchronicity that one cannot help but to wonder whether there are some artificial lights being controlled and hidden somewhere in the forest. Studies have shown that *Pteroptyx tener* live in big colonies and each colony inhabits the trees with young leaves preferably in areas of minimal human intervention. When night falls, the fireflies will feed on the nectar of the leaves and attract mates with their synchronised flashing green light. The thorax of the insect produces a green glow that flashes at a frequency of 1/3 Hz, or 3 flashes in one second. Each of the Berembang tree, scientifically known as *Sonneratia caseolaris*, has different groups of fireflies and each group has flashes that are synchronized unique to the group itself.

The mangrove forests in this area are identified as having a potentially high value for wildlife conservation and ecotourism. It is within this riparian mangrove is also the home to large colonies of fireflies that glow in the dark thus providing a brilliant illumination at night. Conservation of these



TOP Fireflies '*Pteroptyx tener*'
ABOVE Kg Kuantan Firefly Protection Zone
RIGHT PAGE Boat ride to experience fireflies

trees are vital in the survival of these insects as to provide the habitat needed for them. Plus, these mangrove trees are also a habitat to river life such as fish, shrimp and crabs that will contribute to the income of fishermen.

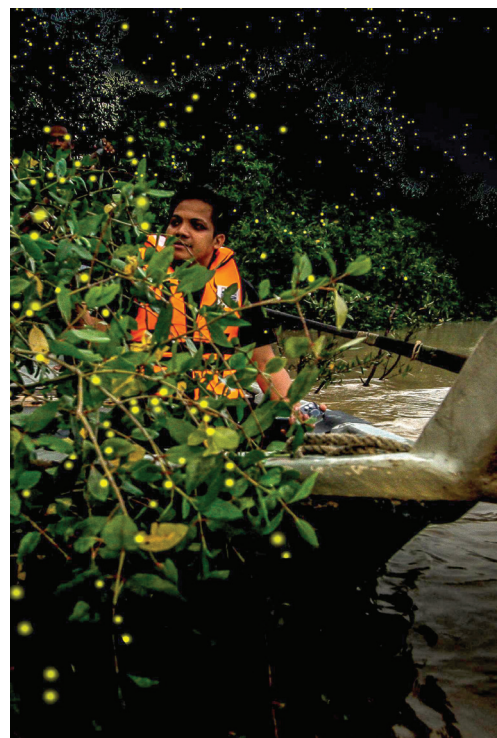
The Berembang tree is a type of swamp tree that grows naturally at the Selangor riverside and is the most abundant and dominant mangrove species found along the riverbank of Kampung Kuantan, which extends up to 18 km downstream and 8 km upstream. The tree requires a tropical climate and swampy surrounding as well as in areas of low salinity (10% or less). The Berembang tree is the key to the survival of the fireflies, as it is an important source of food for these insects. Other than that, Berembang tree is also important as a habitat that acts as a filter for dirt and poison and producing clean water for the organism in the river. Over the years, more land clearance, development upstream and pollution from nearby areas have resulted in the loss of large mangrove areas, and fish resources have become scarce. According to local scientists, while the fireflies can be seen on the trees, it is on the ground of the riverbanks that the female fireflies lay their eggs. Therefore, conserving the river corridor and the natural vegetation in the area are important for the survival of the fireflies.

In my journey to see the fireflies myself, I sincerely had doubts on what I might find in Kuala Selangor. As I travelled by boat from the jetty in the wee hours of dusk with the sun setting behind me, my anticipation grew as the environment around me started to get darker by each moment. After a few minutes cruising up the river, the boat suddenly stopped and started heading to Sungai Selangor's riverbank towards the mangrove trees. All I saw was pitch black darkness. Then suddenly, I could see some flickering lights within the mangrove. As I started to think, is this all there is? Only a few

flickering fireflies? I was wrong. As our eyes began to adapt to the darkness, and knew what we were supposed to look out for, the few flickering lights at the beginning turned to hundreds of lights, and then turned into the thousands as we could now clearly see the beauty of the fireflies in all their glory lighting the riverbank with their synchronised flickering. We even had the opportunity to interact with some of the fireflies as they came close to the boat, and one even landed in my young son's palm. It was this experience which touched my heart on the beauty and significance of these gentle insects and how important it is to protect them.

The Threats to the Light

Fireflies are very sensitive to any physical, biological and chemical changes of its surroundings. Due to the uniqueness of this insect, these sensitive areas should receive full protection from any possible threats that can damage them. A direct impact from the river diversion project will be a decrease in freshwater flushing downstream and subsequently increasing salinity in Kampung Kuantan. As a result, the Berembang trees may not be able to survive, which in turn will have disastrous consequences on the firefly population. Other threats to the firefly population are the ignorance of human encroachment, which may have adverse effect on this habitat. Several 'sampan' rowers have been allowing tourists to collect fireflies despite strict restrictions and regulations imposed on tourists not to collect fireflies. Another problem arises when the villagers had opted to use motorized boats instead of 'sampan' and this has resulted in unhappiness among the visitors, tourists, 'sampan' rowers and other concerned citizens around the area. It also created problems and disturbances to the fireflies and the tranquillity of the mangrove's areas. Realising the danger and potential negative impact to the firefly population, the use of motorized boats has since been banned by the state authority. While restricting the use of motorised boats is a necessary action, environmental education and awareness to the local boat operators and the visitors have to be a continuous effort so that they too understand the long term effects of the boats to the sustainability of firefly areas and the ecotourism activities. Kuala Selangor should not tread lightly on the importance of sustainable development especially on the riverbanks of Sungai Selangor that could lead to pollution problems. There has also been an increase in land clearing activities in the Sungai Selangor watershed area, resulting in higher silt levels in the water. Other contributing factors to poor water quality include effluents and run-off from big agricultural areas and agriculture-based companies. These factors may have contributed to the decline of Berembang trees over the years. Unplanned and unsanctioned development should be dealt swiftly by the local authorities as they may damage the habitat of the fireflies.



A Light at the End of the Tunnel

Local businesses have conducted their activities in a more sustainable manner by ferrying tourists strictly using rowing boats and constantly seeking assistance from conservation experts from both local environmental agencies and NGOs to ensure the firefly populations and the Berembang trees are not affected by tourist activities or other external factors. These efforts are commendable and supported by the visitors. Until today, with basic understanding and knowledge of the firefly ecology, local businesses operate with little disturbance to the habitat. The fireflies of Kuala Selangor attract over 2,000 visitors a month, of whom more than half are Malaysian. It generates income to a majority of the villagers within this district either directly as boat operators and tour guides or indirectly from the sale of local handicrafts and food. The revenue from tourism has become a good side income to the people and has contributed towards improving the financial status and lifestyle of the villagers.

With the pandemic still raging across the world, the tourism industry in this area has indeed been affected by the declining number of tourists coming to see the fireflies. But there is a bright side towards this pandemic as the decline in the number of tourists creates more opportunities for the firefly populations to thrive without interference, as fewer crowds of people come to participate in this spectacular show put on by nature.

In the conservation and protection of the fireflies and its habitat, several actions need to be taken to ensure the survival of these delicate species. The government body must take into account the importance of the environment in regards to the management of the tourism operation of Kuala Selangor district. No large developments should be allowed at the tourism area, such as large-scale chalets, resorts, buildings, and hotels, which will definitely affect and deteriorate the habitat and environment. Government funds must be allocated for the protection, preservation and safekeeping of the firefly habitat. Selangor state government should consider allocating the whole stretch of the Selangor River to be gazetted as a permanent river reserve to help prevent illegal encroachment of the river. The local residents of Kuala Selangor should be involved and encouraged to participate in managing the mangrove areas. The local authority of Majlis Daerah Kuala Selangor (MDKS) has highlighted the importance of conserving the fireflies. According to Kuala Selangor Local Plan 2025, upgrading for the Firefly Protection Zone is in the works with emphasis of Kampung Kuantan and Kampung Bukit Belimbing. These protection zones have been identified as a major tourism

destination for Kuala Selangor and have potential to be gazetted as a National Eco Tourism site by the National Eco Tourism Plan. Currently the area is already gazetted under Lembaga Urus Air Selangor (LUAS) 1999 Enactment, which places this area as a Protected Zone In 2009.

With this enactment in place, several guidelines have been put in place to ensure the protection and the conservation of the river. These include banning the use of chemicals including pesticides, alteration of existing topographic/contour conditions including road construction, discharge of effluent or sewage material without treatment, and disallowing the building of permanent structures within the mangrove forest area. In designing this area there are also guidelines on what can be done in developing the zone. For example, structures are limited to a boardwalk built between mangrove trees without damaging them with a maximum width of 1.5 meters, minimizing the cutting down of mangrove trees, and the development of low intensity and density chalets which will require approval from the local authority.

This enactment will preserve the sensitive areas along the riverbank, buffer zones and its surroundings along Sungai Selangor and Mukim Pasangan. Some of the important upgrading works to be carried out is the replanting of mangrove trees in the Firefly Protection Zone as well as the preservation of the existing mangrove forest by banning all forms of development that can damage the ecosystem of the area. As more tourists come to this site, research on the carrying capacity of this site will be done to ensure a sustainable development can be achieved. Public facilities shall also be upgraded within the Firefly Protection Zone such as jetties, information centres and touring platforms.





Keep the Light Shining to the Future

As a conclusion, Kuala Selangor Fireflies and its surrounding areas should be conserved for the benefit of the future generations and should be maintained since they benefit society as a whole, especially in terms of ensuring excellent environmental quality, which will become increasingly important in the coming years. With the goal of long-term growth, a win-win situation between locals, authorities and other stakeholders should be practised in the Kuala Selangor district to ensure the development of Kuala Selangor is sustainable for all parties, including the fireflies as priceless national assets. In my trip to this magical place, I find that the current traditional tourism activities are currently adequate for the visitors and it is appropriate to sustain the delicate ecological balance of the area. However, the local Kuala Selangor authority should play a role as a governing body to ensure all activities in this area continue to comply with the rules and regulations in order to conserve the habitat and the fireflies.



TOP Jetty for sampans at Kg Kuantan
MIDDLE Kg Kuantan Jetty
BOTTOM LEFT Information centre Kg Kuantan Firefly Sanctuary
BOTTOM RIGHT Entrance to Kg Kuantan Firefly Sanctuary



LAr. Amir Zuhairy Alias has 12 years of experience in the landscape architecture industry and 9 years in university lecturing experience. He specialises and is passionate about concept development aspects of landscape design and is currently active in communication, soft skills, presentation and design development practice and studies. He can be reached at amirzuhairy@gmail.com for any invitation for consultation, external panel or assessor activities.



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