

# FRIM in FOCUS

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## Colours of Biodiversity



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## UNASSUMING GUNUNG LEDANG PLANTS TO LOOK OUT FOR

*Pencarian Tumbuhan yang Tidak Ketara di Gunung Ledang*

**Ummul Nazrah Abd Rahman**

*ummul@frim.gov.my*

**& Nadiah Idris**

Gunung Ledang  
blanketed in green

Gunung Ledang might be just another mountain among countless others along the Titiwangsa Range. What sets the mountain apart is the Puteri Gunung Ledang tales which has passed through many generations without losing charm. Perhaps the most intriguing was the princess's seven peculiar requests to the Sultan of Melaka's proposal of marriage—among which was a gold bridge connecting the royal palace to Gunung Ledang, the highest mountain of the southern Peninsular Malaysia which stood at 1276 metres. The mountain was gazetted as a Johor National Park in 2005 and lies at north-west Johor bordering Melaka.



Peak of Gunung Ledang

Many plants may seem unassuming at first glance, but upon close scrutiny reveal interesting features that are worth describing. Gunung Ledang is home to many inconspicuous plants; among them is cemperai ikan or belalang puak scientifically known as *Pittosporum ferrugineum*. The plant can be found along rivers, edges of swamp and near the sea. Cemperai ikan usually grows at low altitude, on sandy or rocky ground. Few exceptions however are known from several collections at higher altitude around 900 m at Gunung Jerai, Penang Hill and Gunung Ledang. Cemperai ikan is an ornamental tree. Its pounded leaves and fruits are used as fish poison and

**Advisors**

Dato' Dr Abd Latif Mohmod  
Dr Ismail Harun

**Technical Editor**

Mohamad Zaki Mohd Isa

**Editor & Writer**

Ida Suraini Abd Shukor

**FRIM in Focus (FIF) is distributed free of charge upon request. We welcome feedback on any of the FIF articles.**  
**Address comments and enquiries to:**

The Editor & Writer of FRIM In Focus  
**Forest Research Institute Malaysia (FRIM)**  
52109 Kepong, Selangor DE, Malaysia

**Telephone:** +603-6279 7501 | **Facsimile:** +603-6273 1076  
**E-mail:** [idasuraini@frim.gov.my](mailto:idasuraini@frim.gov.my) | **Website:** [www.frim.gov.my](http://www.frim.gov.my)  
**Design & Printing:** Cetak Jitu Sdn Bhd

*Cover photo: Plants particularly their flowers, fruits and seeds in addition to animals appear in many attractive colours.*



Cemperai ikan with orange-yellow coloured fruits



to treat malaria. The fruits are orange-yellow in colour and once mature will split to expose the inner bright red flesh. The split fruit produces oil traces when crushed.

Another interesting find along the road leading up to Gunung Ledang is *Xylopia ferruginea*. The species rarely flowers in the wild. It is a tall tree with straight bole supported by stilt roots (a common habit for trees growing in waterlogged areas). The tree with smooth orange-brown bark can reach up to 20 m. The plant is easily recognised by fruits which resemble bracelets of green beads. The finger-like fruits turn glossy red when ripe. The genus name *Xylopia* is a Greek word which means bitter wood while *ferruginea* in Latin means rusty brown which is the colour under the leaf blades.

Many orchids prefer mountain environment including *Paphiopedilum barbatum*. Also known as the slipper orchid, the plant is commonly found on the lower montane forest such as the Gunung Ledang. A typical feature of this orchid is its showy big flowers resembling a woman's shoe. The plant is frequently hunted for horticultural purposes, especially for its uniquely-shaped flowers. Keen orchid lovers will be surprised to discover a healthy population of slipper orchids flourishing at Gunung Ledang. Firm enforcement by the authorities is the key factor in protecting the orchid population from illegal collectors.



*Xylopia ferruginea*  
Straight bole supported by stilt roots (above)  
Finger-like fruits resembling bracelet of green beads (below)

Gnarled trees are a dominant feature at the peak of Gunung Ledang due to extreme temperature, weather and altitude. Adding to the fascinating view is a type of tree called cucur atap or *Baeckea frutescens* which is frequently seen on ridges. *Frutescens* is a Latin word to describe shrubby.

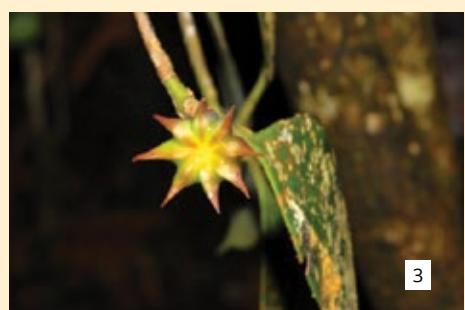
Cucur atap is an evergreen tree with tiny pinkish-white flowers and needle-shaped leaves. The tiny fruits are about 1.5–2 mm wide, enclosed by greenish-brown berry-like capsule. Flowering



1



2



3

season is perhaps the most picturesque. When the wind blows one will be able to witness the snow-like fluttering of falling flowers onto the carpet of white petals.

Aside from aesthetic features, cucur atap is known to possess medicinal benefits. Research and development conducted by FRIM produced an herbal product from cucur atap for the management of gout-related illnesses.

Bonsai trees are stunning because of their gnarled and stunted nature. A typical bonsai-like tree is the *Leptospermum javanicum* which can be encountered along the ridges to Gunung Ledang. The tree has five-petaled white flowers and small leaves. It is easily observed especially when hiking along the main trail up to Gunung Ledang.

Dark and humid surroundings dominate the valley on the trail descending Gunung Ledang, where several specialised habitats occur. The valleys and small riverine housed yet another community of diverse flora. The plants along the track downhill are markedly different from those at the summit. *Illicium tenuifolium* is a species from *Illiciaceae* which is the family of bunga lawang, star anise or *I. verum*. The dried fruit

splits exposing its light brown, glossy, oily and rounded seed. Birds love its star-shaped fruit which is greenish in colour with dark red tinge at the tip of its eight lobes.

A traveller driving down the south-bound route of the Peninsular Malaysia will likely observe more than a few mountains along the way. For those travelling from Petaling Jaya to Segamat using the Tangkak exit of the North-South highway should one day plan a stop at the Johor National Park to savour the natural beauty of Gunung Ledang.

### ABOUT THE MAIN AUTHOR

Ummul Nazrah Abd Rahman is a research officer at the Flora Biodiversity Programme, Forest Biodiversity Division, FRIM. She obtained her MSc from Universiti Kebangsaan Malaya and serves as a team member of the Flora of Malaysia project.



Slipper orchid



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## COLOURS OF FRIM: AROID WITH RED MAROON FLOWER

*Warna-Warni FRIM: Aroid Berbunga Merah*

**Chan Yoke Mui**  
[yokemui@frim.gov.my](mailto:yokemui@frim.gov.my)  
**& Norzielawati Salleh**



1. The elegant maroon flower of *Typhonium roxburghii* that survived the grass-cutting exercise
2. Tri-lobed and entire forms of leaves (left) and a flowering specimen (right).

**Myriad hues of green are dominant colours of the FRIM campus befitting the characteristic of the tropical evergreen forest. Amidst the blanket of green there are occasional splashes of colours. Not only at the canopy, varying coloured plants are often observed on the ground, usually nestled among grasses and fallen leaves.**

It was by chance that an elegant red maroon flower (or spathe, in the case of aroid) caught the attention of the author. *Typhonium roxburghii* is a plant which belongs to the aroid family (locally known as keladi). At that time, the plant was observed growing at the side of FRIM Herbarium car park, next to the conifer arboretum. The plant probably was spared from previous grass-cutting exercise, or else its presence would have remained unnoticed.

*Typhonium* is different from other groups of the aroid family. The plant has a distinct constriction between the lower spathe and the limb of inflorescence, and the flower grows close to or even partially below the ground. The flower is red maroon and twisted usually at the tip. The female and male flowers part is red-purple and coral pink or orange respectively. The inflorescence may last up to two days before withering, and the fruit is berry-like containing 1–2 seeds.

The species is widespread in tropical and subtropical Asia, from India to Taiwan and south to Java, Borneo and east to New Guinea. At FRIM, the small *Typhonium* (10–20 cm tall) grow in clumps and is

often overlooked as the flowers are rarely seen (frequent grass-cutting may be the factor inhibiting the plant to progress into flowering). Although the plants are frequently mowed down from time to time, it is heart-warming to see new leaves springing up within days, survived by the tubers below ground.

The tuber of *T. roxburghii* contains non-food starch that may be suitable for commercial applications such as in pharmaceutical. The attractive maroon flower makes the plant a potential candidate for ornamental purposes. It is also fairly easy to grow and maintain. A recent scientific study showed *T. roxburghii* contains anti-allergic and anti-inflammatory properties.

At FRIM, the plants are found in semi-shaded patches around the Herbarium car park, along the road sides of Jalan Jelutong and Dipterocarp Arboretum. Visitors may have the opportunity to look for the red velvet flowers among many other attractions, during their visit to FRIM.

### ABOUT THE MAIN AUTHOR

Chan Yoke Mui does conservation monitoring of threatened or rare plants in Peninsular Malaysia, such as begonias and palms. Her fields of research are reproductive biology, demography, population genetics and ecology. She likes to spend time with and learn from Mother Nature.

# THE BEAUTIFUL BLUE KILLER

*Pemangsa Biru yang Cantik*

Nur Alwani Zakaria  
[nuralwani@frim.gov.my](mailto:nuralwani@frim.gov.my)

Mohammad Shahfiz Azman, Kaviarasu  
Munian, Nor Hazwani Ahmad Ruzman &  
Noor Faradiana Md Fauzi

When walking in woody and wet areas it is always better to be extra vigilant and watch your step. There might be venomous reptiles hiding under leaves or dead wood such as the blue coral snake which belongs to same group as cobras, kraits and sea snakes. The beautiful deadly coral snake is actually the dangerous *Calliophis bivirgata*. The coral snake uses its venom which is a toxic secretion to take down prey as well as a defence against predators—the toxin usually causes death to victims. The species has unusually long venom glands. The glands can reach up to one-fourth of its body length, making it a species with the largest venom gland.



The blue coral snake is unique in that its venom contains a cytotoxin that causes muscular tissue destruction and difficulties in breathing. This is unlike other species that contain neurotoxin which attacks the nervous system. Immediately after a bite, the venom causes few or no symptoms at all. However, after several minutes the victim will start to feel numbness around the wound as the venom shuts down muscle contractions. Death usually is a result of respiratory failure.

The coral snake specialises on preying on other venomous snakes including the young king cobra. To achieve this, the venom has to be highly potent to ensure survival when trying to capture its prey. The coral snake consumes other reptiles such as lizards and frogs as well as birds. However, it is not considered a good striker since it moves slowly when foraging.

The blue coral snake is medium-sized with a slender body that can reach up to 18.5 cm long. Its head, tail and belly



are red while the back is dark blue to black with white stripes on each flank. The reptile is also easily confused with the harmless species pink-headed reed snake as both share similar habitat and appearance. However upon close inspection, the reed snake's tail is not red while the scales are smaller than the coral snake.

The coral snake inhabits lowland to montane forests of up to 1200 meters elevation. The species prefers woody and wet areas which are suitable for hiding from predators and hunting for prey. It can be found in the primary and secondary rainforests of Myanmar, southern Thailand, Peninsular Malaysia, Singapore and Indonesia (Sumatra to Riau Archipelago). It lives and forages between leaves, logs and rocks. It is defensive in behaviour and often avoids humans and other large predators. If trapped, it may flip over to expose the brilliant red and orange colour underneath. Sometimes it coils with its tail erect to scare away potential threats.

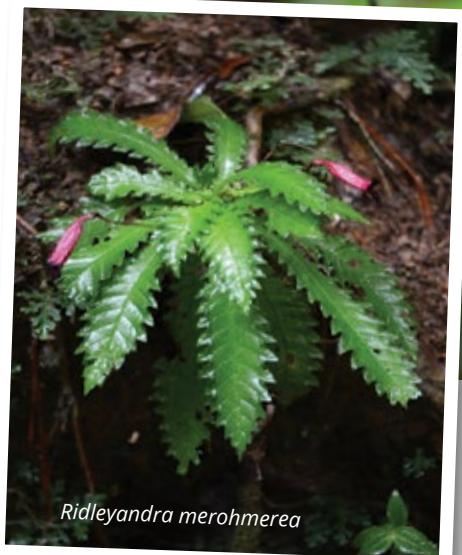
FRIM researchers carried out survey on vertebrates including reptiles, amphibians, mammals and birds at Panti Forest Reserve, Johor, which is one of the central forest spine (CFS) corridors established to address issues of fragmented forest in Peninsular Malaysia. The survey was conducted to record and provide a faunal baseline data of the area. The information will be a guide in conservation activities to maintain the richness of biodiversity.

*Calliophis bivirgata* is listed as the Least Concern in the International Union for Conservation of Nature Red list (IUCN) because of the widespread distribution and presence in many protected areas. Although there are conservation requirements, the habitat of the blue coral snake has to be conserved to ensure a sustainable environment and continuous existence of the attractive and unique snake for generations to come.

The blue coral snake

#### ABOUT THE MAIN AUTHOR

Nur Alwani Zakaria is a research officer at the Fauna Biodiversity Programme, FRIM. She holds the Bachelor of Science (Zoology) with Honours degree from Universiti Kebangsaan Malaysia.



## JOY AMIDST CONCERN FOR NEW SPECIES DISCOVERY

*Kegembiraan dalam Kebimbangan Penemuan Spesies Baharu*

Siti Munirah Mat Yunoh  
sitimunirah@frim.gov.my

The Malaysian forests are explored for a variety of reasons by diverse parties, ranging from researchers, nature enthusiasts, forest related industries to adventure seekers. However, discovery of new flora and faunal species may be restricted to scientists who can determine the authenticity of the finding.

FRIM has conducted many forest expeditions in projects such as the Flora of Peninsular Malaysia. The project was initiated in 2005 to document biodiversity and provide reliable and accurate accounts of plant families. Through these explorations, a number of new species were discovered in the Peninsular Malaysia. For example, plant species that were discovered in Kelantan include *Codonoboea kelantanensis*, *C. pauziana* and *Ridleyandra kelantanensis* in 2009, *Rhododendron chamahensis* in 2011, *Impatiens chikuensis*, *I. glaricola* and *I. vinoso* in 2016.

The latest finding from Kelantan was a *Ridleyandra* species from the Ulu Galas Forest Reserve. It is a beautiful and elegant plant with red flowers—an uncommon trait among the genus. This *Ridleyandra* is the second red flower discovered after *R. iminii* from Gunung Benom.

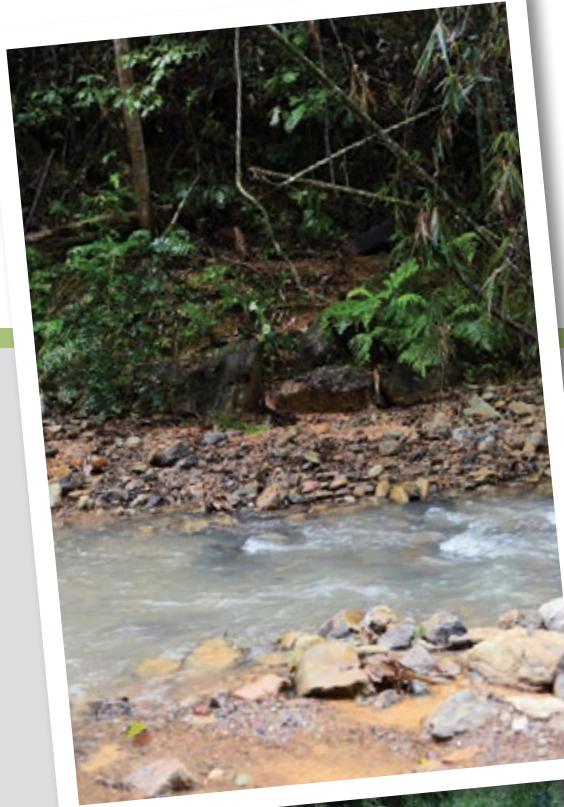
The species was a fortunate finding from an original faunal survey conducted on January 2017. A team member who was also a passionate nature photographer took many floral and faunal photos including a particular *Ridleyandra* plant. The photos were sent to the author for identification who then brought them to the attention of a gesneriad expert. Both plant experts were ecstatic as many characteristics of the discovery were totally different from existing species—the plant is probably a new species.

Two months later, at the end of the rainy season in Kelantan, a three member team under the guidance of the founder returned to Sg Tuang of Ulu Galas forest to relocate the particular *Ridleyandra* plant. The author, accompanied by an experienced botanical collector braved through a challenging journey through a deforested area to reach the location.

The Ulu Galas Forest Reserve was partly converted into a plantation forest under a project by the state government. The sight of the logged over forest reminded the author on the immense amount of lost and damaged biodiversity, causing mixed feelings of frustration, helplessness and sadness. The proposed plantation forest will probably be a source of income for the locals but losing the natural vegetation is also a high price to pay.

From the author's observation, the surrounding forest is still stunning. The riparian (riverside) vegetation is still intact although its future remained uncertain since the earlier part of the forest was already cleared. It may not be a far-fetched to imagine that the land opening activities will be extended further into the adjacent remaining forest. A fervent hope is for the forest authorities to assess the biodiversity status before approving more land clearing activities.

The team managed to locate the *Ridleyandra* species and acquired samples for conducting taxonomic treatment. The new species was officially published as *Ridleyandra merohmerea*. *Merohmerea* is derived from Kelantanese dialect meaning bright red or *merah terang* in Malay. The name was chosen to attract people to appreciate plants and create a sense of belonging to the new discovery. In addition, it is crucial that more locals play their role in protecting forests within their vicinity. There is still much to be explored and discovered from tropical forest in terms of cure for diseases and perhaps cancer. Losing existing forest means losing forever the chances of finding new cures from the area.



Habitat of  
*Ridleyandra*  
*merohmerea*



Sg Tuang of Ulu Galas Forest Reserve

#### ABOUT THE AUTHOR

Siti Munirah Mat Yunoh is a research officer at the Flora Biodiversity Programme, Forest Biodiversity Division, FRIM. She obtained her MSc from Universiti Kebangsaan Malaysia and serves as a member of the Flora of Malaysia project.

# DAUN PEGAGA

*Centella asiatica*

Dr Vimala Subramaniam  
[vimala@frim.gov.my](mailto:vimala@frim.gov.my)

Pegaga (*Centella asiatica*), also known as Asiatic pennywort, is a small creeping herb with long stalks and kidney-shaped green leaves which are soft and smooth in texture. It is indigenous to Southeast Asia and the Indian subcontinent. Pegaga is an aquatic plant, usually found growing wild in wet and moist surroundings, such as swamps, along margins of lakes, ponds and paddy fields.

The wondrous herb, with anti-aging and hypotensive properties, is a common prescription in the Malay traditional medicine and Ayurveda. The direct action of pegaga in lowering blood pressure is useful as a rejuvenating medicament. Research shows that pegaga contains plant phytochemicals, called triterpenoids, that facilitate the growth of connective tissues such as elastin and collagen, which prevents skin wrinkling and enhances skin complexion. It was found as beneficial in the treatment of varicose veins and relieving stress, anxiety and fatigue, especially during menopause. In traditional medicine, pegaga is recommended as blood purifier and anti-virus for re-occurring flu and fever, and as cure for indigestion and excessive gastric juices.

The pegaga leaves are widely used for culinary purposes in Malaysia, Indonesia, Myanmar, Vietnam, Thailand, India, Sri Lanka and Bangladesh. In Malaysia, all three major ethnic groups consume pegaga leaves. The Malays serve the leaves raw as ulam and salad, while the Chinese juice the leaves to make body cooling drink, and the Indians consume the decoction as brain tonic.

Pegaga is a brain power enhancer, providing mental and memory improvement. Research showed pegaga boosts the central nervous system activity by improving intelligence and enhancing memory. Pegaga also demonstrated cognitive-enhancing and antioxidant properties. Since pegaga is effective in preventing cognitive deficits and oxidative stress which accelerate Alzheimer's disease in the elderly, the daily consumption of pegaga may prevent the occurrence of Alzheimer's disease.

Pegaga is sensitive to biological surroundings and pollutants, especially in water which may be

absorbed by the plant. Since the plant is sometimes found in damp puddles and sewage areas, it is important to procure pegaga from clean surroundings. For consumption purposes, the leaves require soaking and thorough washing in salt water and turmeric to avoid parasitic and bacterial infections.

Pegaga: The 'Elixir of Youth'



## ABOUT THE AUTHOR

Dr Vimala Subramaniam is a research officer at the FRIM Publications Branch. She is the recipient of various national and international awards for her findings in herbal research.

## HOME-MADE PEGAGA JUICE

Steep the pegaga leaves in hot water for 10 minutes, remove the leaves and add honey. Adding lemon or cucumber juice may help enhance the taste. Pegaga leaf juice is a rejuvenating brain tonic



# CONCERNS ON VOC EXPOSURE

## Kerisauan Pendedahan Terhadap VOC

Dr Mohd Khairun Anwar Uyup

[mkanwar@frim.gov.my](mailto:mkanwar@frim.gov.my)

& Cham Sook Yen

Consumers like us come into contact with a wide array of chemicals every day without realising it, either in food that we consume or products that we utilise. Organic compounds are chemicals containing carbon that are found in living things. A large group of chemicals called the volatile organic compound are found in products for personal care and home maintenance. Volatile organic compounds, sometimes referred to as VOCs easily evaporate into vapours or gases. Although many products contain these compounds such as cleaning materials, refrigerants and coatings, the focus would be on those emitted from the latter.

Volatile organic compounds are used as organic solvent to accelerate the drying of coating and easily evaporate at room temperature. High level of volatile compound affects human health and coating operators have the highest tendency of exposure. Health effects are apparent in short and long term exposures. Short term exposure ranges from hours to days with common symptoms including eye, nose and throat irritations, headaches, nausea or vomiting, dizziness, and worsening of asthma. Long term exposure ranges from years to a lifetime, may cause cancer and damages to the liver, kidney and central nervous system.

Precautions are required to reduce exposure to volatile organic compounds. Measures involved are increasing ventilation in work area especially during coating applications, and wearing appropriate protective gear such as lab coat, respirator, goggle and gloves. It is also important to check VOC content in the product's label or the material safety data sheet.



Safety measures include wearing appropriate gear while applying coatings

There are two main types of solid coatings—high-solid coatings are formulated with higher concentrations of solids compared to low-solid coatings which have higher volatility. Using high-solid coating would greatly reduce emission of volatile organic compounds to the surrounding.

Water-borne coating is another safer alternative as it emits lesser odour, has lower toxicity and contains lesser solvents, particularly the volatile organic compounds. Using water-borne coating in restricted spaces reduces the built up flammable materials and lessens issues on safety.

The volatile organic compounds are released daily from most types of coatings and may eventually be carcinogenic to human health. The negative impacts of these commonly used compounds should not be ignored. Precautionary actions are essential to reduce the tendency of exposure to high levels of VOCs.

### ABOUT THE MAIN AUTHOR

Dr Mohd Khairun Anwar Uyup is a research officer and Head of the Wood Finishing Laboratory, Forest Products Division, FRIM. His area of specialisation is in wood science and technology (majoring in wood enhancement and protection), and non-wood forest products.

# PERKHIDMATAN PENSIJILAN PRODUK FRIM (FRIM PCS)

*FRIM Product Certification Services (FRIM PCS)*

**Nor Haliyan Tan Shilan**

haliyan@frim.gov.my

FRIM telah menubuhkan Perkhidmatan Pensijilan Produk FRIM atau lebih dikenali sebagai FRIM PCS pada bulan Jun 2013. Penubuhan FRIM PCS bertujuan untuk mewujudkan satu badan yang bertanggungjawab memastikan kualiti produk terutamanya perabot memenuhi keperluan sesuatu standard dan spesifikasi produk yang ditetapkan secara konsisten. Penubuhannya juga merupakan lanjutan isu permasalahan kualiti perabot yang dibekalkan kepada kerajaan bagi Kontrak Pusat Sistem Panel, terutama yang melibatkan kerusi dan meja murid oleh Kementerian Kewangan (MOF) dan Kementerian Pendidikan Malaysia (KPM). Pemegang-pemegang taruh seperti KPM, Kementerian Pertahanan Malaysia, Kementerian Dalam Negeri Malaysia, MOF, agensi-agensi lain dan persatuan-persatuan perabot telah memberi maklum balas positif melalui program-program dialog yang telah diadakan pada tahun 2013, 2014 dan 2015.

Penubuhan FRIM PCS telah diluluskan melalui kuasa khas Menteri Sumber Asli dan Alam Sekitar sebagai tambahan Akta 319, Akta Lembaga Penyelidikan dan Pembangunan Perhutanan Malaysia. FRIM telah berjaya diakreditasi sebagai badan pensijilan produk yang kelapan di Malaysia pada 12 Disember 2014 berdasarkan keperluan ISO/IEC 17065:2012 (Conformity Assessment – Requirements for Bodies Certifying Products, Processes and Services) daripada Jabatan Standard Malaysia. Peranan FRIM PCS dilihat mampu membantu industri tempatan bersaing secara sihat untuk menghasilkan produk



berkualiti bagi menguasai pasaran tempatan serta melepas halangan perdagangan antarabangsa. Pewartaan Akta FRIM 782 pula membolehkan FRIM mengkomersialkan penemuan hasil penyelidikan dan pembangunan (R&D), serta memberikan penanda aras baharu produk-produk hasil hutan melalui proses pensijilan produk. FRIM kini memainkan peranan yang lebih luas sebagai badan pensijilan produk berdasarkan perhutanan dan

## PROSES PENSIJILAN PRODUK

PROSES PENSIJILAN PRODUK FRIM BAGI SATU PUSINGAN



keluaran nutan serta memperkasakan industri yang berkaitan.

Kesemua syarikat yang terlibat dalam Skim Pensijilan Produk diaudit secara berkala dan sampel produk akan diuji semasa pengauditan tahun pertama. Proses pengauditan memastikan kualiti produk yang dihasilkan adalah konsisten, dan status syarikat sebagai pembuat dan pengeluar perabot adalah tulen. Melalui pensijilan produk, peningkatan tahap keupayaan syarikat dalam mengeluarkan produk berkualiti juga dapat dipantau dan dibuat penambahbaikan dari semasa ke semasa.

Keutamaan pensijilan produk adalah keselamatan, kestabilan, ketahanan dan kekuatan seperti yang ditetapkan oleh standard dan keperluan pelanggan.

Fokus utama pensijilan produk FRIM PCS ialah perabot berdasarkan kayu yang dibekalkan kepada KPM khususnya perabot murid. Sebanyak 18 pengusaha perabot tempatan telah berjaya memperoleh pensijilan produk FRIM PCS bagi 47 jenis produk perabot KPM setakat Disember 2017.

FRIM PCS bersedia untuk mempersijilkan kesemua produk perabot kontrak kerajaan yang melibatkan 24 kementerian, dan produk perabot pasang siap bawah



Majlis penganugerahan sijil produk FRIM PCS kepada syarikat perintis

projek pembangunan kerajaan. FRIM PCS juga memperluaskan skop perabot untuk pasaran terbuka, eksport dan import. Kemampuan FRIM PCS dalam memastikan kualiti produk perabot negara terjamin dapat meningkatkan lagi kepercayaan pengguna dari dalam dan luar negara. FRIM PCS mensasarkan 60 syarikat akan diperintis pada tahun 2018-2019 bagi pelbagai jenis produk perabot.

FRIM PCS juga telah memulakan projek rintis Skim Pensijilan Rintangan Api pada tahun ini dan dua syarikat perintis telah dipilih. Skim pensijilan produk FRIM PCS akan dikembangkan merangkumi skim pensahihan bahan mentah herba, pengeluaran bahan tanaman, komponen struktur bangunan dan kualiti kertas.



4

1. Taklimat FRIM sebagai badan pensijilan produk perabot bersama pengusaha serta wakil MOF, KPM, KDN dan MINDEF
2. Majlis pelancaran dan forum PCS bersama MARA, MOF, MTIB dan MATRADE
3. Proses audit dilaksanakan di kilang oleh juruaudit PCS
4. Sijil Akreditasi FRIM sebagai Badan Pensijilan Produk

### TENTANG PENULIS

Nor Haliyan Tan Shilan merupakan Timbalan Pengurus Pensijilan FRIM PCS.

# FRIM TERIMA ANUGERAH KECEMERLANGAN PENGURUSAN KEWANGAN

*FRIM Receives Financial Management Excellence Award*

Unit Komunikasi Korporat



Sijil yang disampaikan oleh Jabatan Audit Negara

**5 Mac 2018**—FRIM menerima ‘Anugerah Kecemerlangan Penarafan Lima Bintang Pengurusan Kewangan Berdasarkan Indeks Akauntabiliti’ bagi tahun 2016 daripada Jabatan Audit Negara.

Pengiktirafan lima bintang yang julung-julung kali diterima ini menunjukkan FRIM bawah kepimpinan Ketua Pengarah, Dato’ Dr Abd Latif Mohmod berjaya menguruskan kewangannya dengan penuh tanggungjawab dan integriti.

Pengauditan yang dilaksanakan pada 28 November hingga 22 Disember 2016 memberi tumpuan terhadap sembilan aspek iaitu kawalan pengurusan, kawalan bajet, kawalan terimaan, kawalan perbelanjaan, pengurusan kumpulan wang amanah/akaun amanah dan deposit, pengurusan aset dan inventori, pengurusan pelaburan dan pengurusan pinjaman, serta penyata kewangan.



Abd Latif (kiri) dan Mohd Zamshari Abd Rahman, Pengarah Kewangan FRIM dengan sijil yang diterima



Proses audit yang dijalankan di FRIM



Nik Adlin menerima anugerah beserta sijil JIPA (atas), Norain, Dr Wan Tarmeze dan Nik Adlin di gerai FRIM (bawah), sijil anugerah reka bentuk terbaik JIPA (bawah kiri)

## FRIM MENANGI ANUGERAH REKA BENTUK TERBAIK JIPA DI MTE

*FRIM Wins JIPA Best Design Award Award at MTE*

Unit Komunikasi Korporat

**24 Februari 2018**—FRIM memenangi anugerah reka bentuk terbaik Japan Intellectual Property Association (JIPA) di Ekspos Teknologi Malaysia (MTE) 2018 yang berlangsung di Kuala Lumpur dari 22-24 Februari 2018. Inovasi yang bertajuk ‘Modular Seating System’ adalah hasil penyelidikan Nik Adlin Nik Mohd Sukri dan Dr Wan Tarmeze.

## KP LENGKAPKAN 33 MBR BAGI ULANG TAHUN KE-33 FRIM

DG FRIM Obtains 33rd MBR for 33rd Anniversary

Unit Komunikasi Korporat



Dari kiri: Abd Latif, Wan Junaidi, Zahid, Wong dan Azizan semasa majlis penyampaian sijil MBR

**19 Februari 2018**—Lima pengiktirafan Malaysia Book of Records (MBR) yang diterima Ketua Pengarah FRIM, Dato' Dr Abd Latif Mohmod menyempurnakan sasaran FRIM untuk mendapat 33 rekod MBR sempena ulang tahun ke-33 FRIM.

Dua sijil pengiktirafan MBR disampaikan oleh Ketua Pegawai Operasi MBR, Christopher Wong semasa majlis perasmian FRIM Inc pada 2 Februari. Turut hadir menyaksikan majlis tersebut ialah Dato' Seri Dr Ahmad Zahid Hamidi, Timbalan Perdana Menteri; Datuk Seri Dr Wan Junaidi Tuanku Jaafar, Menteri Sumber Asli dan Alam Sekitar (NRE); dan Dato' Sri Azizan Ahmad, Ketua Setiausaha NRE.

Pada Januari lalu, Timbalan Pengurus Besar MBR, Mohamad Alex Edward menyampaikan tiga sijil MBR kepada Abd Latif yang menerima lima pengiktirafan atas pencapaian:

Saintis Perhutanan Pertama menerima

- Anugerah Saintis Muda Negara
- Dua anugerah sains kebangsaan
- Anugerah Tokoh Buku Penyelidikan
- Anugerah Tokoh Penyelidikan dan Pembangunan (R&D), dan

Saintis Perhutanan Termuda menerima Anugerah Pencapaian Saintifik IUFRO

KP FRIM memenangi Anugerah Tokoh Buku Penyelidikan (2015) dan Anugerah Tokoh R&D (2016) daripada Yayasan Pembangunan Buku Negara bagi mengiktiraf sumbangan beliau yang mempelopori usaha menterjemah penerbitan saintifik FRIM ke bentuk buku-buku mesra ilmu yang mudah difahami.

Dua lagi MBR yang diterima FRIM adalah untuk, 'Garis Panduan Pemindahan Bahan Tanaman yang Pertama untuk Spesies Hutan Tropika', hasil usaha pasukan penyelidik bioteknologi dan biodiversiti FRIM yang diketuai Dr Lee Chai Ting; dan 'Bangunan Pertama Dibina Menggunakan Kayu Acacia mangium', hasil kajian pasukan penyelidik diketuai Dr Hamdan Husain.

## TPM LANCAR FRIM INC

DPM Launches FRIM Inc

Unit Komunikasi Korporat



Dari kiri: Zahid, Wan Junaidi dan Azizan menyampaikan ucapan masing-masing

**5 Februari 2018**—Dato' Seri Dr Ahmad Zahid Hamidi, Timbalan Perdana Menteri melancarkan FRIM Incorporated (FRIM Inc) di Villa Fragrans, FRI, Kepong pada 2 Februari.

Turut hadir di majlis ialah Datuk Seri Dr Wan Junaidi Tuanku Jaafar, Menteri Sumber Asli dan Alam Sekitar (NRE); Dato' Sri Azizan Ahmad, Ketua Setiausaha (KSU) NRE yang juga Pengurus FRIM; Dato' Dr Abd Latif Mohmod, Ketua Pengarah FRIM, ketua-ketua dan wakil-wakil jabatan NRE; rakan-rakan kerjasama FRIM, pemain-pemain industri, para pemegang taruh dan beberapa wakil Malaysia Book of Records (MBR).

FRIM Inc ditubuhkan pada 4 Ogos 2017 sebagai anak syarikat FRIM bagi mengkomersalkan hasil-hasil penyelidikan dan pembangunan (R&D) termasuk perkhidmatan teknikal FRIM untuk menjana pendapatan.

Berdasarkan tagline 'Discover Unlimited Potential', FRIM Inc mensasarkan aktiviti pemasaran dan jualan produk-produk hasilan R&D, perkhidmatan kepakaran dan kemahiran, perkhidmatan perlindungan harta intelek, khidmat teknikal berbentuk pemindahan teknologi dan latihan, serta komersialisasi harta intelek di pasaran terbuka. Dari Disember 2017 hingga Januari 2018, FRIM Inc. telah memperoleh perniagaan bernilai kira-kira RM1 juta.

### Errata

In *FRIM in Focus December 2017*: on page 2, the caption should read "Fruits of tembusu padang, with pointed tips (inset)" and subsequently on page 3, the caption (left) is "Fruits of belinjau with little surrounding flesh and large seed (inset)

# KOMUNITI SETEMPAT MAINKAN PERANAN DALAM CADANGAN TAPAK WARISAN DUNIA WHS-UNESCO FRIM

*Surrounding Communities Plays Their Part in Proposed WHS-UNESCO FRIM World Heritage Site*

Azreena Amer Khan  
azreena@frim.gov.my

Mohd Parid Mamat, Dr Huda Farhana Mohamad Muslim & Dr Nur Supardi Mohd Noor

FRIM sedang berusaha mendapatkan pengiktirafan Tapak Warisan Dunia WHS-UNESCO bagi memastikan kelestarian hutan tropika buatan manusia pertama dan tertua di dunia. Pemuliharaan kawasan menggunakan dana peruntukan RMK 11 melibatkan antara lainnya, pemerkasaan komuniti setempat yang menyokong usaha pengiktirafan FRIM sebagai tapak warisan dunia. Komuniti berfungsi menyumbang pengetahuan dan maklumat asas bagi membantu pihak berkuasa, khususnya pengurusan FRIM bagi merangka keputusan atau tindakan lanjut.

Beberapa siri "Bengkel Konsultasi Pemegang Taruh: Penyertaan Komuniti dan Berbagai Pemegang Taruh dalam Program Pemuliharaan Tapak Warisan Kebangsaan FRIM" dijalankan sepanjang tahun 2016 dan 2017 bagi mendapatkan resolusi komuniti setempat. Satu daripada resolusi adalah menubuhkan jawatankuasa sokongan penglibatan komuniti setempat bagi program pemuliharaan Tapak Warisan Kebangsaan FRIM.

Jawatankuasa gabungan peringkat komuniti yang dikenali sebagai Jawatankuasa Sahabat Komuniti Tapak Warisan Kebangsaan FRIM (JSK-TWK FRIM) ditubuhkan pada November 2017. Jawatankuasa dianggotai perwakilan daripada enam penempatan komuniti dalam dan 26 penempatan komuniti kawasan kejiraninan, atau di sempadan FRIM. Pelantikan ahli jawatankuasa dijalankan melalui proses undian.



Simbolik majlis pelancaran oleh Ketua Pengarah FRIM selaku Penasihat JSK-TWK FRIM



AJK Sahabat Komuniti Tapak Warisan Kebangsaan FRIM bersama sekretariat FRIM

Majlis pelancaran JSK-TWK FRIM diadakan pada 12 November 2017 dengan kerjasama sekretariat pelaksana hasil gabungan dua bahagian iaitu Bahagian Perhutanan dan Alam Sekitar dan Bahagian Perancangan Penyelidikan manakala ucapan perasmian disampaikan Ketua Pengarah FRIM, Dato' Dr Abd Latif Mohmod.

Jawatankuasa yang ditubuhkan dianggotai Penasihat iaitu Ketua Pengarah FRIM dan ahli-ahli iaitu pengurus dan timbalan pengurus bersama, setiausaha, penolong setiausaha dan bendahari yang dibantu 47 wakil kawasan penempatan di sempadan FRIM.

Empat biro menjadi penggerak JSK-TWK FRIM iaitu biro-biro Promosi dan Perhubungan, Sosial dan Kemasyarakatan, Keusahawanan

dan Ekonomi, dan Latihan dan Belia. Setiap biro dianggotai ketua Biro dan tiga orang ahli. Pemilihan jawatankuasa bagi enam wakil zon utama kawasan penempatan komuniti turut dilaksana. Semua ahli jawatankuasa yang hadir pada hari tersebut secara langsung menjadi ahli mengikut zon masing-masing.

### TENTANG PENULIS UTAMA

Azreena Amer Khan ialah seorang pegawai penyelidik di Program Perhutanan Sosial, Bahagian Perancangan Penyelidikan. Beliau merupakan ketua bersama projek "Penilaian Penglibatan Pemegang Taruh terhadap Program Pemuliharaan Tapak Warisan Kebangsaan FRIM". Bidang kepakaran beliau ialah kajian perhutanan sosial dan ekonomi alam sekitar.