

The Cicadas of Fraser's Hill

Text and photos by **Preston Murphy**

In *Nature Watch* 19(3), we provided a presentation of Mammals of Fraser's Hill. In this issue, Preston Murphy puts his scientific mind to work on another fascinating group of animals, the cicadas.



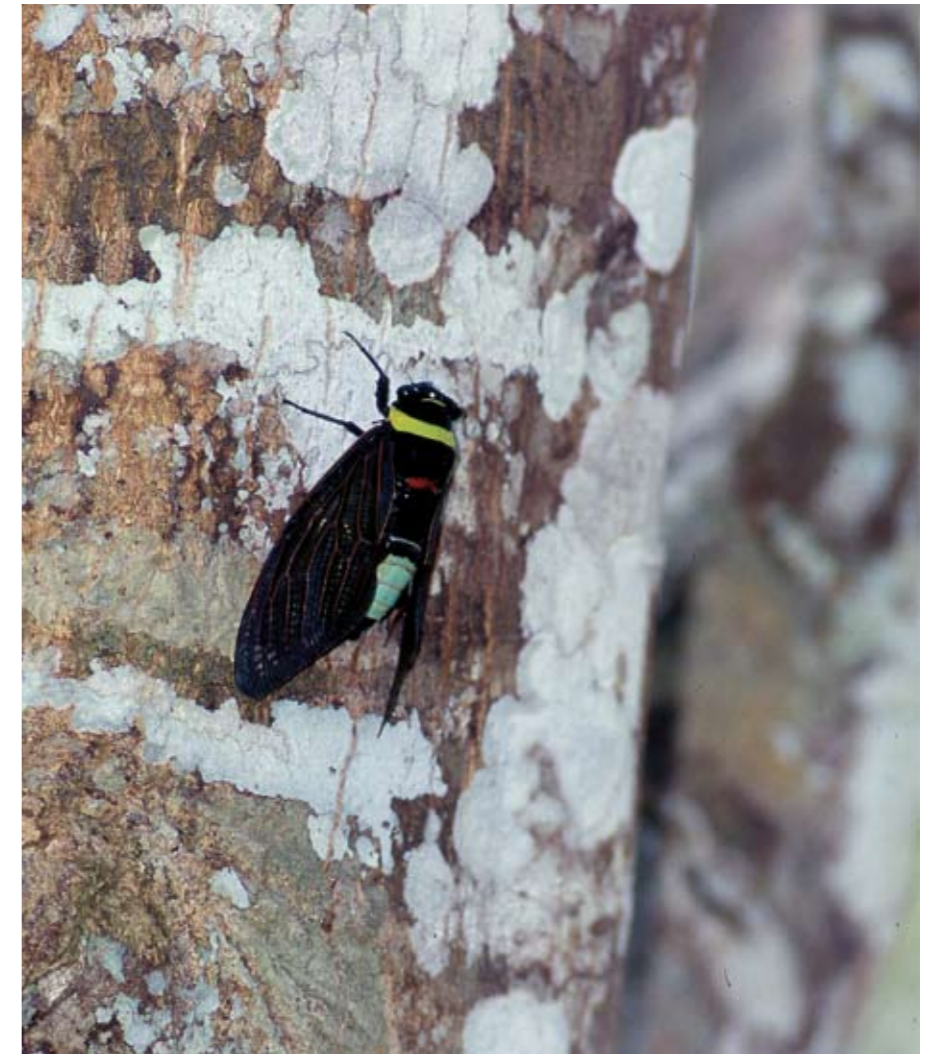
Dr. Murphy in the field taking photographs of nocturnal insects using a portable generator to produce light. Photo Vilma D'Rozario.

Fraser's Hill is well known for the great biodiversity of its rainforest including hundreds of different kinds of trees that provide a home for countless wildlife. The birdlife is well known and butterflies, moths and spiders have been gaining attention. For a number of years my friends and I have been using a bright light to attract the great emperors and other moths from the night forest, and we have always noticed the occasional cicada that makes a noisy entrance among the quiet moths. While cicadas are rarely seen, their mating calls constitute a large part of the insect chorus that fills the tropical forest both day and night. In Europe, cicadas are loved as harbingers of summer vacations along the Mediterranean sea coast. However, most species are found in the tropics, especially South-east Asia with some 850 species (including ~115 in Peninsular Malaysia) out of some 2,500 species worldwide.

A recent book, *The Cicadas of Thailand Boulard* (2006) tempted me to first document and then try to identify the cicadas of Fraser's Hill. The books *Birds of Thailand* and *Butterflies of Thailand* are valuable guides for most of the Malaysian species, so why not the cicadas? So I set about the task. In the daytime when cicadas are calling, you can examine the tree trunks and bare branches with binoculars to find the caller and even occasionally spot the flying insect. And of course at nighttime they are attracted to light.

After some time, with my photographs and a provisional identification list in hand I searched the web for specialists who could help me verify my initial identifications and sent a note to Tomi Trilar in Slovenia. He forwarded my request to Hans Dufels in Amsterdam, Holland, who is curator of one of the largest collections of South-east Asian cicadas. Hans kindly received me on a visit at the museum, but he surprisingly had to correct most of my species identifications based on the Thai book.

Adult cicadas do fly but only short distances, they tend to remain near their 'home' trees. Not only do bodies of water block any migration, but so do changes



A large and conspicuous cicada *Tacua speciosa* calling during the daytime along the Old Road from the Gap to Fraser's Hill. Photo Morten Strange.

Many nocturnal cicadas are attracted to light and can be photographed with ease. Their wings are mostly transparent and patterned with dark veins, while the bodies of black, brown, or green are decorated according to species.

in tree species or soil composition. As a result, some 80% of Thai cicadas are stopped at the Kra Isthmus in Thailand and cannot be found further south.

Sunny periods will tempt cicadas to call, giving the opportunity for good views. The beautiful *Tacua speciosa* can be found in forests from 1300 meters altitude at Fraser's down to at least 600 m. Its booming 'wind-up' sounding call *rrrrr-ang* is unmistakable. While calling the male arches his back and slides his black wings away to show a light cobalt blue abdomen, while a vibrating organ, called a tymbal, produces his call. He is

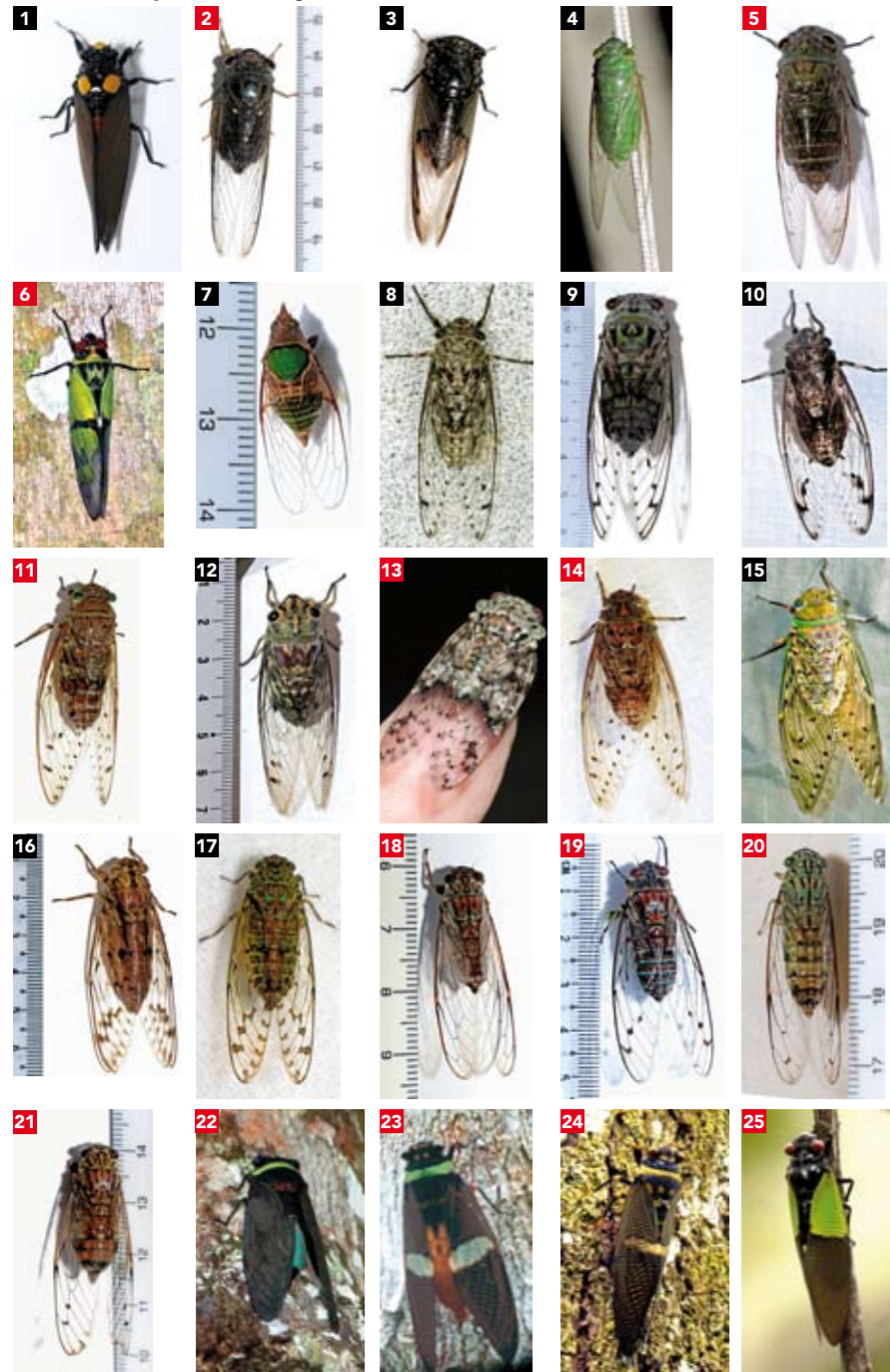
truly king of the diurnal cicadas!

Tosena fasciata lives in the same region and the males show an orange body when calling *whee-z-z-z*. Recently we have found his cousin, *T. depicta* who calls: *zzzzz-tk-tk-tk*. *Trengganua sibylla* (green and black in colour) prefers the lower altitude (~700m) forest along the Gap-to-Raub road. This one calls in mixed-species groups with the lovely *Gaena festiva*. *Sibylla* shows bright yellow hind-wings in flight and might be confused with a Malaysian Birdwing butterfly. All of the above are rather large and colourful.

CICADAS OF FRASER'S HILL

As seen and photographed by Dr. Preston Murphy

Order: Hemiptera Family: Cicadidae



Subfamily: Cicadettinae

Tribe Heuchysini

1 *Heuchys fusca* (Distant)

Subfamily: Cicadinae

Tribe Cryptotympanaria

2 *Chremistica echinaria* (Yaakop & Duffels)

3 *Cryptotympana aquila* (Walker)

"Fireman Cicada"

Tribe Dundubiini

4 *Dundubia vaginata* (Fabricus)

5 *Dundubia oophaga* (Distant)

Tribe Gaeanini

6 *Gaena festiva* (Fabricus)

Tribe Moganniini

7 *Mogannia sesioides* (Walker)

Tribe Platylomiini

8 *Platylomia abdulla* (Distant)

9 *Platylomia saturata* (Walker)

10 *Platylomia spinosa* (Fabricus)

11 *Platylomia* sp. (New to Science, resembles *P. flavida*)

12 *Orientopsaltria ruslani* (Duffels & Zaidi)

Tribe Platyleurini

13 *Platyleura ridleyana* (Distant)

Tribe Pomponiini

14 *Megapomponia imperatoria* (Westwood)

15 *Pomponia decem* (Walker)

16 *Pomponia* sp1 (New to Science, resembles *P. picta*)

17 *Pomponia lactea* (Distant)

Tribe Cicadini

18 *Purana obducta* (Schouten & Duffels)

19 *Purana tripunctata* (Moulton)

20 *Puranooides jaafari* (Azman & Zaide)

21 *Nabalua zaidii* (Duffels)

Tribe Tacuini

22 *Tacua speciosa* (Illiger)

Tribe Toseniini

23 *Tosena fasciata* (Fabricus)

24 *Tosena depicta*

25 *Trengganua sibylla* (Stal)

Two tiny cicadas may be seen on the leaves of plants and bushes: *Mogannia sesioides* has a cone-shaped head and beautiful gold and green body with dark red stripes; while *Heuchys fusca*, the only species to be found of the *Cicadettinae* subfamily, is chocolate brown with yellow decoration. Other diurnal cicadas such as the *Chremistica* prefer to call from the canopy and are rarely seen unless they are attracted to light.

Many nocturnal cicadas are attracted to light and can be photographed with ease. Their wings are mostly transparent and patterned with dark veins, while the bodies of black, brown, or green are decorated according to species. However, they lack the rich color of their diurnal cousins.

When picked up gently for study, the males vibrate and give a squawk or two. Females are completely silent when held in the hand, but they very rarely come to our light, numbering less than 5% of males. Published work on the attraction to light is divided, with some authors finding females more numerous than males. Females usually have smaller bodies, as they lack the sound-producing tymbals and acoustic chambers of the male.

Cicadas don't sting, bite or cause disease but their calls can be deafening. Hundreds of *Chremistica guamusangentis* were calling when we recently visited the Belum forest in Malaysia, and we could not sleep while one called in our bathroom; his call exceeded 100 dB SPL at 50 cm on my sound level meter.

The calling sound level of cicadas has been correlated with the insect's weight, and the world's loudest to date, *Brevisana brevis* (0.3g), has been measured at 106.7 dB. I have been hoping to measure the calls of the world's largest cicada *Megapomponia imperatoria* (2g), or of *Tacua speciosa* (1.5g) to find a new world champion. Unfortunately, *Tacua* has never been close enough to measure, and the great *Megapomponia* has been too stressed to sing near the light or when caged outside for a day or two.

Malaysian cicadas are found throughout the year although March-April is high season. They spend most of their life underground as larvae drinking sap from tree roots followed by a brief (3 to 21 day) winged adult period calling for mates, or being called for, in the tree branches.

The adults can pierce tree bark to continue drinking the sap with their pro-



A pair of *Pomponia lactea*; the female on the left is significantly smaller.

boscis. The larval stage usually lasts for 1-10 years, although the North American *Magicicadas* spend 13 or 17 years underground, only then do they emerge in mass to overwhelm their predators.

Hans Duffels has been studying the historical geographical distribution of cicada species in South-east Asia and the Western Pacific islands including New Guinea and Sulawesi. The landmasses in this region have been moving with their tectonic plates in different directions over millions of years, and Hans finds that most of the cicadas have remained with their landmass of origin where they evolved with time.

Hans introduced me to Azman Suliaman with the National University of Malaysia (UKM); he is the only resident Malaysian entomologist working on cicada taxonomy. With the kind help of Azman and the UKM collection, we have come up with a personal Fraser's Hill list of 25 different species (including two not yet described by science) from 14 genera, 11 tribes and two subfamilies.

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Out of this list, the two species new to science plus 12 others were new records for Fraser's Hill. The published species list, covering 21 expeditions over 88 years stands at 27, so the present work brings this list to 41 species.

Now when we enter the forest, we are delighted to find old friends and rare new acquaintances not only among the birds, butterflies and moths, but also among the cicadas. 🌿

Editor's note: Dr. Murphy's main reference was a report by Zaidi et al from a November 2000 expedition to Fraser's Hill Bukit Fraser: Persekitaran Fizikal, Biologi dan Sosioekonomi. This report was made available to him by Azman Suliaman of the National University of Malaysia (UKM). The relevant chapter is "Cicada [Homoptera: Cicadoidea] Fauna of Fraser's Hill, A Survey & Overview" which summarizes all previous work. The list in this report included all cicada material in the NUS Reference Collection as well and added five new species bringing the known total as at November 2000 to 27 for Fraser's Hill. Dr. Murphy saw 11 of the species on this list during his surveys, as well as 14 new ones, bringing the total to 41 species for Fraser's Hill. Dr. Murphy's photographs of five diurnal species were acceptable as proof of new records, without a need for museum specimens. His other reference Cicadas of Thailand by Michel Boulard (2006) is more easily available, but has few species found at Fraser's Hill.



Dr. Murphy and wife Mireille with another Nature Watch contributor friend in the background, Celine Low. Photo Vilma D'Rozario.

Dr. Preston V. Murphy is former President of Lectret Precision Pte. Ltd, Singapore and still consults for the company. In retirement, Dr. Murphy has become a passionate nature photographer, specializing in butterflies, moths and cicadas; he and his wife Mireille are avid eco-travelers and visit places as diverse as Peru and Papua New Guinea.

Last updated 3 June 2011. 14 species marked in red are new records for Fraser's Hill. The associated photos all show males.