



rimba

JALAN ELMU
Biodiversity Survey

by

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Once Upon a Home

There were some charming cottages in Finland. The people moved away. And the animals moved in.
—Carolyn Butler, writer

“When I go into these houses, it’s like stepping back in time—the past lingers in the corners. But there’s consolation in the idea that nature is reclaiming the places it has lent to people.”
—Kai Fagerström, photographer

Excerpt from National Geographic, Oct 2012.

Read the full story here:
ngm.nationalgeographic.com/2012/10/wild-squatters/butler-text

Something very similar is happening in the University of Malaya.
The story is told in these pages.



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Treehopper; Common House Gecko; Leafhoppers mating
(Photos by Dr. Teo Eng Wah)

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The Jalan Elmu nexus is a 6.7-hectare (16.5-acre) area in the southwest of the University of Malaya (UM), comprising 34 bungalows—some still occupied—that primarily served as academic staff quarters and once housed the UM kindergartens (TADIKUM and TASKUM).

It is one of the last surviving verdant islands of lush greenery in a sea of institutional, commercial and residential development.

The wildest and remotest places on Earth [...] will be protected only if urban people care about nature where they live.

Ted Trzyna, IUCN

The Jalan Elmu Biodiversity Survey was commissioned by the Deputy Vice-Chancellor (Development), and conducted by The RIMBA Project, a campus sustainability Living Lab supported by the UM Development Office and Sustainability Science Research Cluster. The survey spanned nine field sessions over nearly three months.

This report begins with an overview of the Jalan Elmu/Lorong Universiti nexus, followed by the biodiversity report. As with last year's Section 12 Biodiversity Survey, a surprising variety of urban wildlife was recorded in Jalan Elmu—over 60 species of trees, plus mammals, birds, reptiles, amphibians and various invertebrates. Whatever built developments may come, they ought to tread carefully and leave as small a “footprint” as possible.

The report concludes with recommendations for conservation, taking into account the Section 12 findings as well. There is much potential for both areas, Section 12 and Jalan Elmu, to be considered for a novel type of “mixed development”—an urban biodiversity park.

The RIMBA Project, May 2015
um.rimba@gmail.com

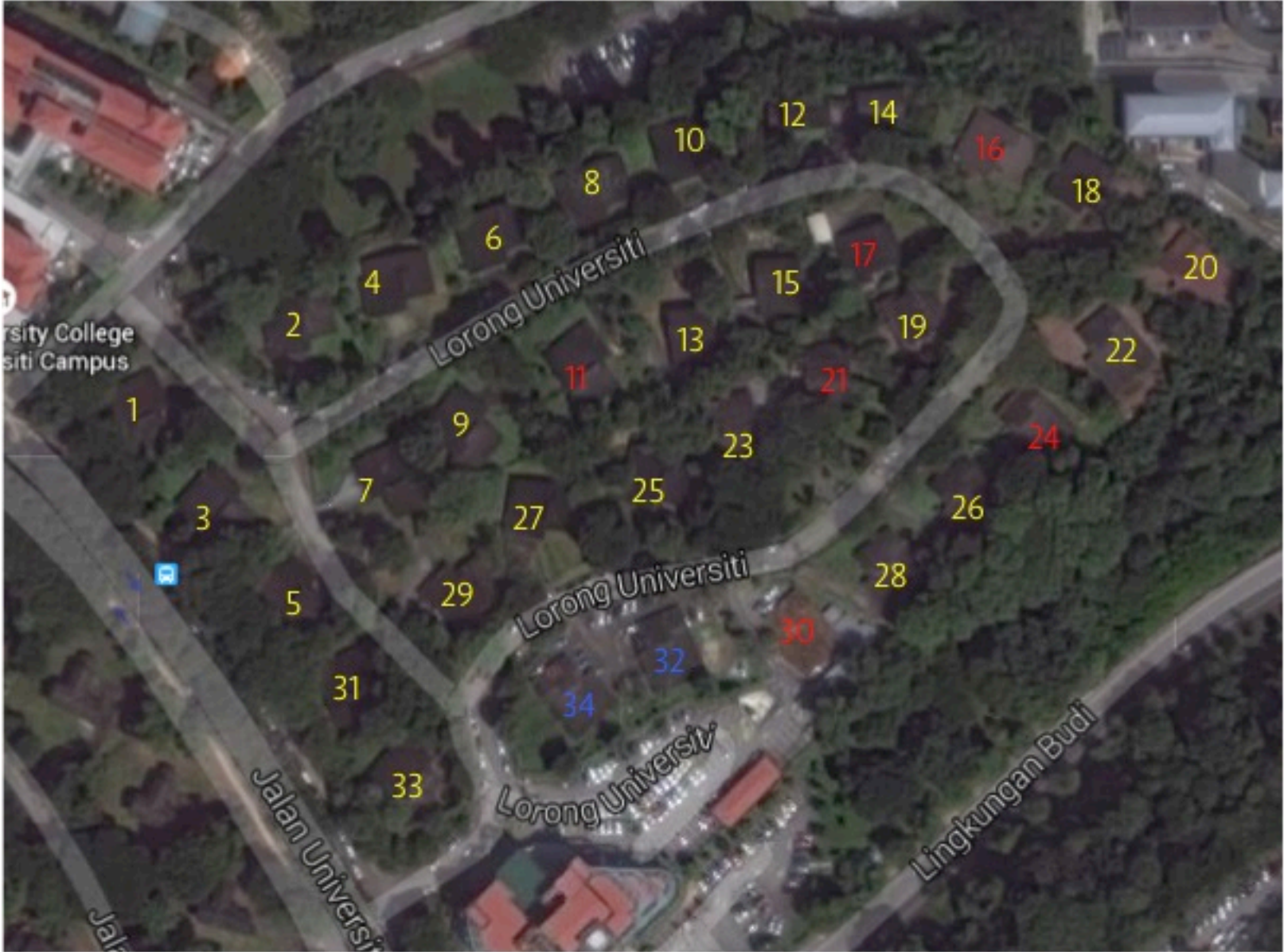


The study area is bordered by Jalan Universiti to the west and Jalan Elmu to the north. Lorong Universiti is the ring road that connects all the bungalows.

It is a generally “green” area, with abundant trees, a field to the north, a small forest thicket to the south-east, and the very green Section 12 across Jalan Universiti.

- A UM Specialist Centre (UMSC)
- B Forested Area
- C Faculty of Economics and Administration
- D Field
- E Section 12

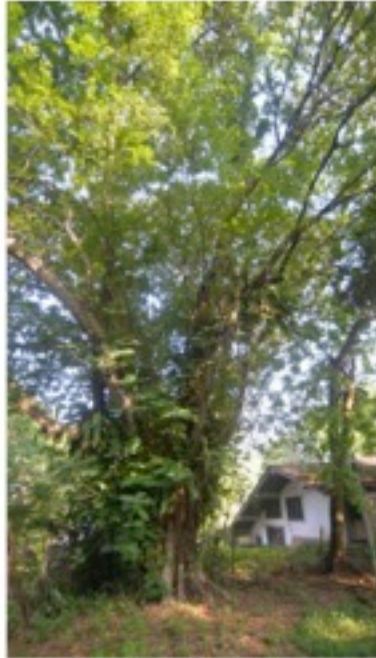
Layout of Bungalows

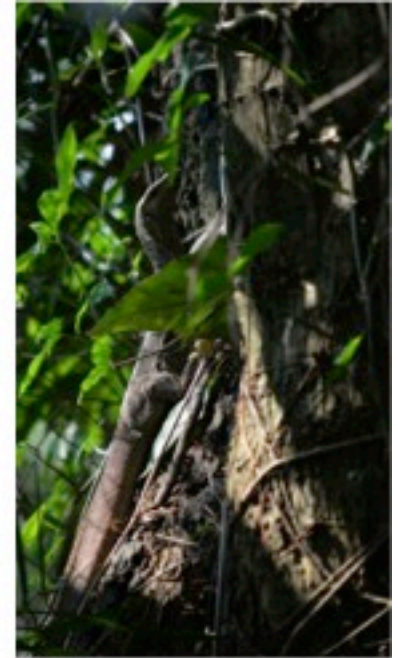


Vacant
Inhabited
UMSC Parking



The old bungalows are surrounded by lush greenery. Some of these bungalows are still inhabited, some have been converted into parking lots; but plenty of green spaces and shady, tranquil avenues still exist.



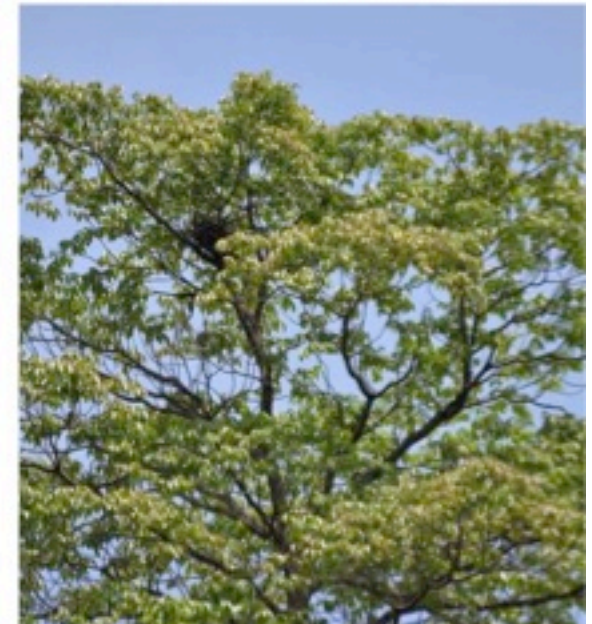


A secondary forest is silently growing barely metres away from the UM Specialist Centre (UMSC).

In the shade of buildings, bats roost.

In the shadow of trees both planted and wild, animals take refuge—lizards scurry around, birds nest high above the ground.

They call this place home.





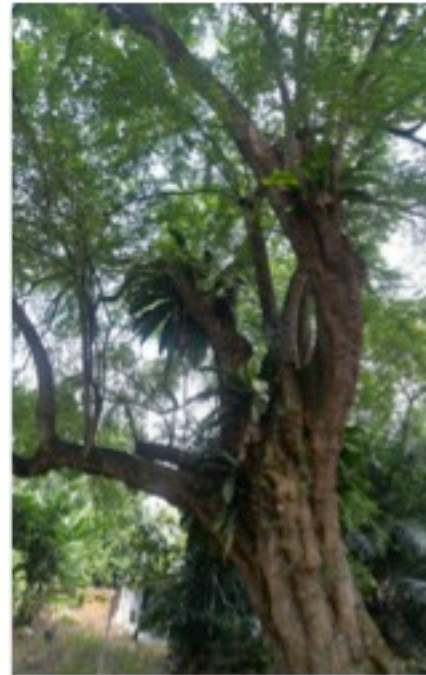
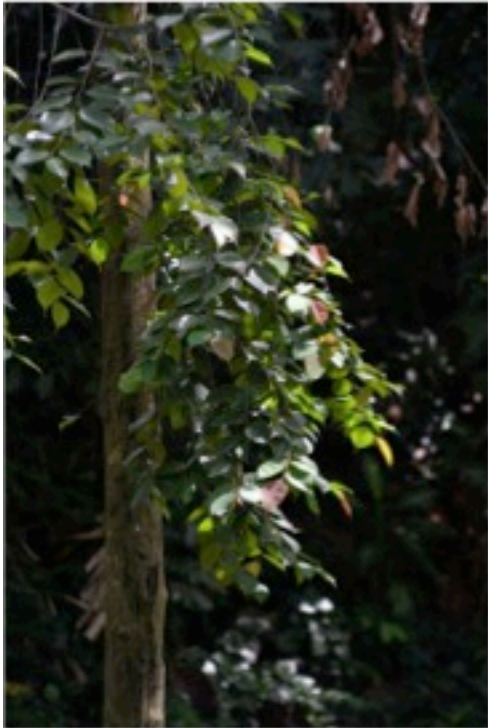
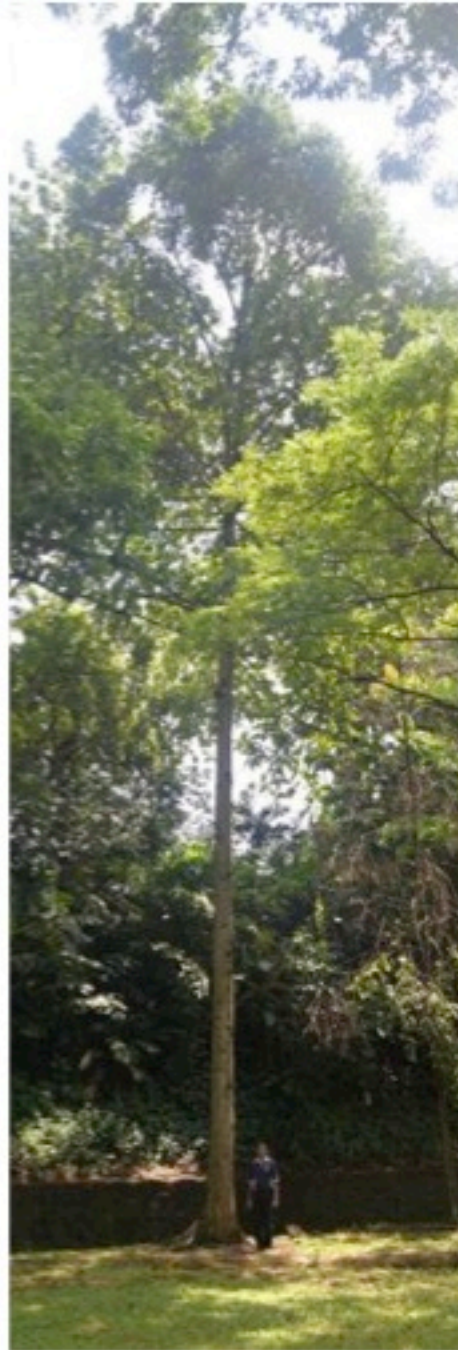
The elaborate branches of the Rain Tree

ELMU TREES



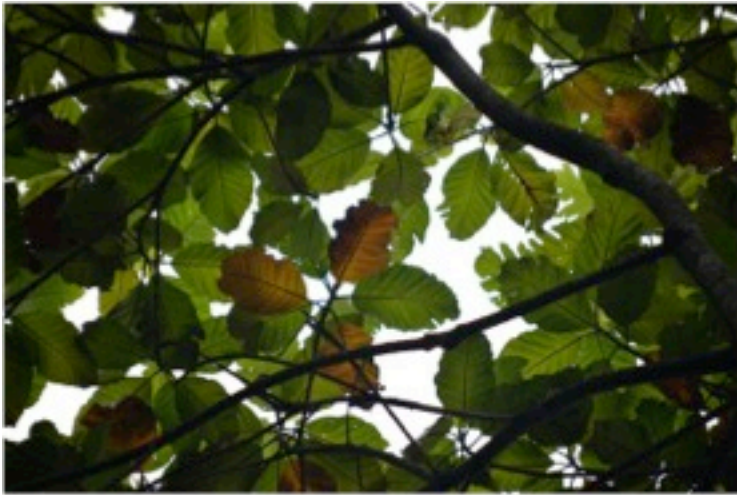


The grove near UMSC/PJ Gate is home to a variety of forest species, including the magnificent Merawan (*right*) and Kapur (*below*), an endangered species.



On the other side of the Elmu nexus, a row of Pelong trees (*above*) tower over the bungalows and field. In their shade thrives the medicinal Kadok (*below*). Trees come in all shapes and sizes, and the Madras Thorn (*left*) is one of the giants in the Elmu area, with an impressive, sprawling canopy.

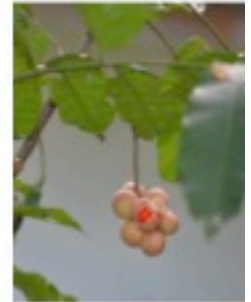
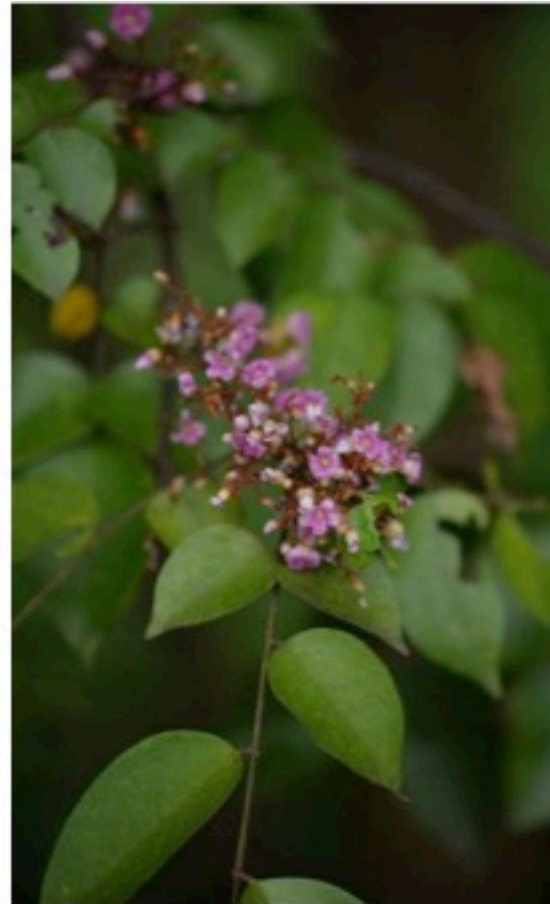




Among the canopy-forming trees in the secondary forest is the wild jackfruit, *Artocarpus scortechinii* (above), with large, attractively-shaped leaves.

On the ground

another story is told, with little seedlings of trees like *Podocarpus* pushing out of the soft earth.



Colourful flowers and fruit
 (clockwise from above)
 Starfruit/Belimbing Besi;
 Rain Tree;
 Pithraj fruit;
 Balik Angin;
 Kelat Laut.



Trees



Mapping Trees

We mapped over 400 trees across 60 species and over 20 plant families.

This does not include small palms and shrubs and the vegetation in the dense forest thickets.

Data recorded on www.pericopsis.org

429 TREES 61 SPECIES



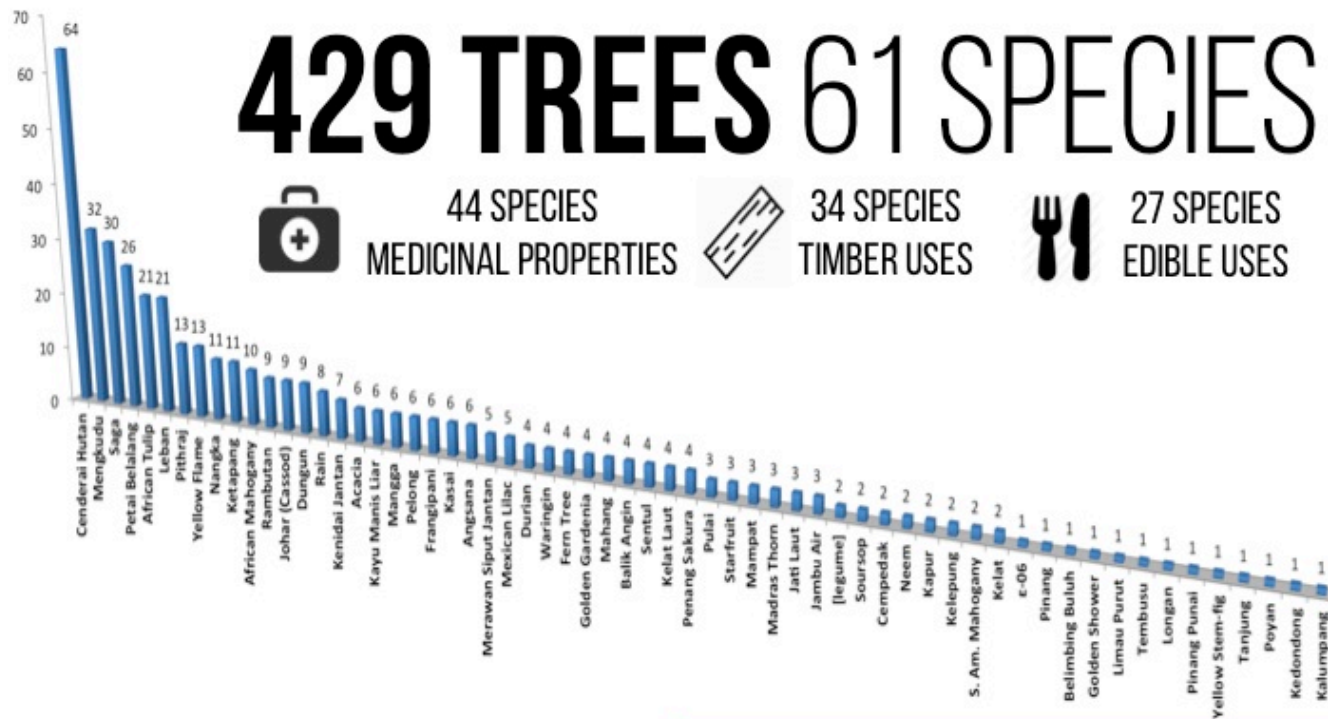
44 SPECIES
MEDICINAL PROPERTIES



34 SPECIES
TIMBER USES



27 SPECIES
EDIBLE USES



At least 20 species (one-third) are not found in UM's Section 12 land, the next-nearest similar environment.

Scientific Name

Common/Local Name

Known Medicinal, Timber and Food Uses

Acacia auriculiformis

Acacia

Wood for furniture

Adenantha pavonina

Saga

Leaves, wood and seeds medicinal; wood for construction

Albizia saman

Rain Tree

Wood for music instruments

Alstonia angustiloba

Pulai

Leaves, latex and bark medicinal

Annona muricata

Soursop/Durian Belanda

Leaves medicinal; fruit edible

Aphanamixis polystachya

Pithraj

Wood for construction; oil for fuel

Areca catechu

Pinang

Leaves medicinal; fruit (areca nut) chewed as stimulant

Artocarpus heterophyllus

Nangka

Wood for construction; fruit edible

Artocarpus integer

Cempedak

Wood for construction; fruit edible

Artocarpus scortechinii

Nangka Pipit, Terap

Fruit edible

Averrhoa bilimbi

Belimbing Buluh

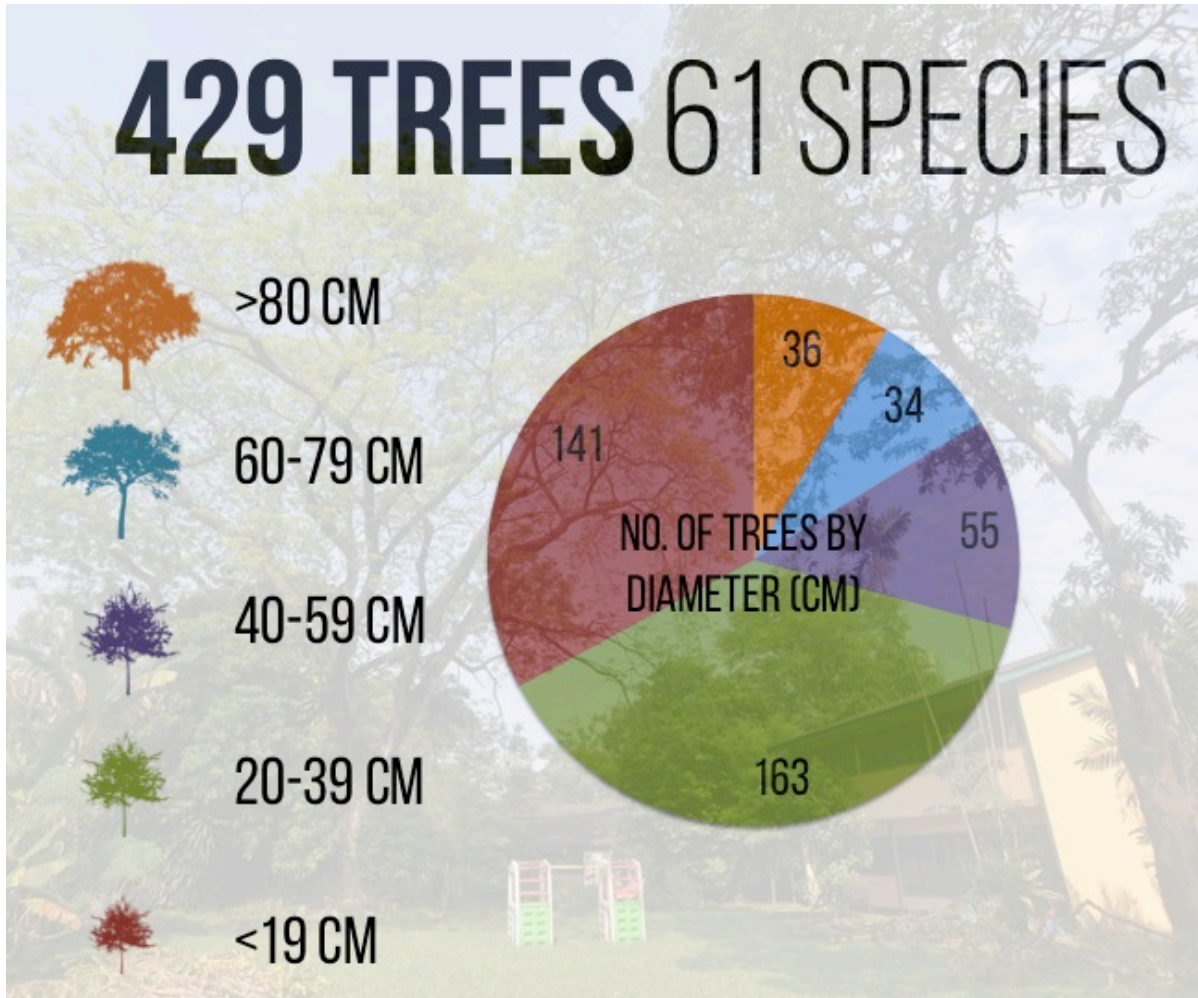
Leaves, flowers and fruit medicinal; fruit edible

Trees

Scientific Name	Common/Local Name	Known Medicinal, Timber and Food Uses
<i>Averrhoa carambola</i>	Starfruit/Belimbing Besi	Fruit medicinal and edible
<i>Azadirachta indica</i>	Neem	Almost all parts medicinal; fruit and leaves as insecticide
<i>Bridelia tomentosa</i>	Kenidai Jantan	Leaves and roots medicinal
<i>Cassia fistula</i>	Golden Shower	Leaves, bark and fruit medicinal; pulp smoked with pipe tobacco
<i>Cinnamomum iners</i>	Wild Cinnamon/Kayu Manis	Leaves and bark medicinal, supposed antidote for Ipoh poison
<i>Citrus hystrix</i>	Kaffir Lime/Limau Purut	Leaves and fruit medicinal/edible; wood for tool handles
<i>Cratogeomum formosum</i>	Mempat	Roots medicinal; wood for planks
<i>Cyrtophyllum fragrans</i>	Tembusu	Bark medicinal; wood for construction
<i>Dimocarpus longan</i>	Longan	Fruit and flowers medicinal; fruit edible; seeds for soap
<i>Dryobalanops aromatica</i>	Kapur	Resin medicinal; wood for construction
<i>Durio</i> sp.	Durian	Fruit edible
<i>Elaeocarpus petiolatus</i>	Pinang Punai, Mendong	Leaves medicinal
<i>Ficus benjamina</i>	Weeping Fig/Waringin	Leaves and bark medicinal; young leaf buds edible; bark for rope
<i>Ficus fistulosa</i>	Yellow Stem-fig	Roots medicinal; leaves edible
<i>Ficus variegata</i>	Kelepung	Bark and fruit medicinal; shoots and young fruit edible
<i>Filicium decipiens</i>	Fern Tree	
<i>Gardenia carinata</i>	Golden Gardenia	Fruit medicinal; wood for carving
<i>Gliricidia sepium</i>	Mexican Lilac	Planted as shade for cocoa trees
<i>Heritiera littoralis</i>	Dungun	Seeds medicinal; wood for construction
<i>Hopea odorata</i>	Merawan Siput Jantan	Resin and bark medicinal; wood for construction
<i>Khaya senegalensis</i>	African Mahogany	Leaves, bark, resin and seed medicinal; wood for construction
<i>Leucaena leucocephala</i>	Petai Belalang	Seeds and young pods edible
<i>Macaranga heynei</i>	Mahang	
<i>Mallotus paniculatus</i>	Balik Angin	Roots medicinal
<i>Mangifera indica</i>	Mango/Mangga	Flowers medicinal; fruit edible

Scientific Name	Common/Local Name	Known Medicinal, Timber and Food Uses
<i>Microcos tomentosa</i>	Cenderai Hutan	Roots medicinal; wood for tool handles
<i>Mimusops elengi</i>	Tanjung	Almost all parts medicinal; wood for furniture; fruit edible
<i>Morinda sp.</i>	Mengkudu	Leaves, fruit and roots medicinal; shoots and fruit edible
<i>Nephelium lappaceum</i>	Rambutan	Bark, leaves and roots medicinal; fruit edible
<i>Peltophorum pterocarpum</i>	Yellow Flame/Batai Laut	Wood for making ornaments
<i>Pentaspadon motleyi</i>	Pelong	Resin medicinal; wood for construction; fruit edible
<i>Pithecellobium dulce</i>	Madras Thorn	Wood for panelling; fruit edible
<i>Plumeria sp.</i>	Frangipani/Kemboja	Bark and leaves medicinal
<i>Podocarpus sp.</i>	Jati Laut	Wood for planks
<i>Pometia pinnata</i>	Kasai	Bark medicinal; wood for construction and firewood; fruit edible
<i>Pterocarpus indicus</i>	Angsana	Bark medicinal; wood for furniture; flowers/young leaves edible
<i>Rhodamnia cinerea</i>	Poyan	Leaves and roots medicinal; wood for construction
<i>Sandoricum koetjape</i>	Sentul	Leaves, bark, roots medicinal; wood for construction; fruit edible
<i>Senna siamea</i>	Cassod/Johar	Wood for construction
<i>Spathodea campanulata</i>	African Tulip	Bark, flowers, seeds medicinal; wood for carving; seeds edible
<i>Spondias dulcis</i>	Kedondong	Leaves and fruit edible
<i>Sterculia parviflora</i>	Kalumpang	Resin medicinal; seeds edible
<i>Swietenia macrophylla</i>	South American Mahogany	Seeds medicinal; wood for furniture
<i>Syzygium aqueum</i>	Jambu Air	Bark medicinal; wood for making ornaments; fruit edible
<i>Syzygium grande</i>	Kelat Laut	Wood for construction
<i>Syzygium lineatum</i>	Kelat	Roots medicinal; wood for construction; young shoots edible
<i>Tabebuia rosea</i>	Pink Trumpet	Leaves, flowers, roots and trunk cortex medicinal
<i>Terminalia catappa</i>	Ketapang	Bark, leaves, roots and seeds medicinal; wood for construction
<i>Trema orientalis</i>	Pigeon Wood	Leaves and bark medicinal; wood for firewood and charcoal
<i>Vitex pinnata</i>	Leban	Leaves and bark medicinal; wood for tool handles

Trees



Numbers at a Glance

36 trees have a diameter greater than 80 cm. These may be protected under local council laws.

Eight species are mentioned on IUCN's Red List of Endangered Species.

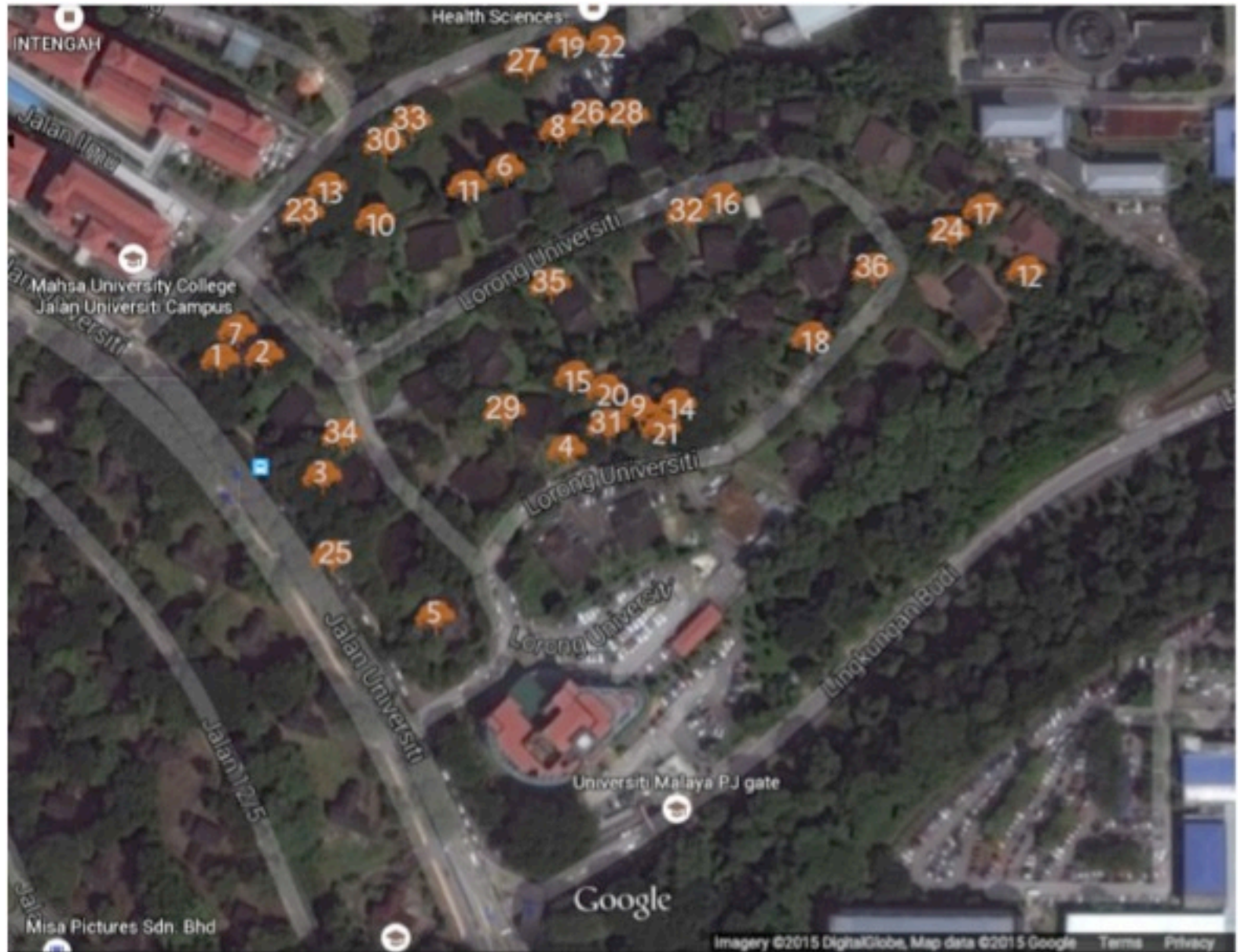
- NT** *Dimocarpus longan*
- VU** *Pterocarpus indicus* | *Swietenia macrophylla*
| *Hopea odorata* | *Khaya senegalensis*
- EN** *Vitex pinnata* | *Pentaspadon motleyi*
- CR** *Dryobalanops aromatica*





The infographic shows the size range of the largest tree in each house.

Where the giants are . . .



The largest trees are distributed over houses No. 1, 3, 5, 11, 17, 18, 19, 20, 21, 23, 25, 27, 31 and 33.

The highest concentration of large trees are in Nos. 23, 25 and 27.

Trees

No	Species	Diameter (cm)	No	Species	Diameter (cm)
1	Mexican Lilac	187	19	Rain Tree	111
2	Mexican Lilac	183	20	Pithraj	110
3	Yellow Flame	178	21	Pithraj	108
4	Yellow Flame	160	22	Rain Tree	107
5	Madras Thorn	150	23	Rain Tree	106
6	Pelong	143	24	Madras Thorn	99
7	Mexican Lilac	139	25	Waringin (Weeping Fig)	96
8	Pelong	130	26	Nangka	96
9	Mengkudu	128	27	Rain Tree	94
10	Mexican Lilac	127	28	Mexican Lilac	94
11	Pelong	396	29	Waringin (Weeping Fig)	92
12	Madras Thorn	124	30	Waringin (Weeping Fig)	92
13	Rain Tree	123	31	Waringin (Weeping Fig)	92
9214	Rain Tree	120	32	Cassod	89
15	Pithraj	118	33	Rain Tree	89
16	African Tulip	116	34	Saga	86
17	Tanjung	115	35	Pithraj	85
18	Yellow Flame	113	36	Angsana	82

Numbers correspond to the graphic in the preceding slide.



Javan Myna in African Tulip Tree

ELMU BIRDS



We recorded 19 bird species:



Yellow-vented Bulbul



Spotted Dove



Black-naped Oriole and Coppersmith Barbet



Javan Myna

- | | |
|--------------------------|-------------------------------|
| Asian Glossy Starling | <i>Aplonis panayensis</i> |
| Asian Koel | <i>Eudynamys scolopacea</i> |
| Black-naped Oriole | <i>Oriolus chinensis</i> |
| Coppersmith Barbet | <i>Megalaima haemacephala</i> |
| Javan Myna | <i>Acridotheres javanicus</i> |
| Large-billed Crow | <i>Corvus macrorhynchos</i> |
| Large-tailed Nightjar | <i>Caprimulgus macrurus</i> |
| Oriental Magpie Robin | <i>Copsychus saularis</i> |
| Pied Triller | <i>Lalage nigra</i> |
| Pink-necked Green Pigeon | <i>Treron vernans</i> |
| Rock Pigeon | <i>Columba livia</i> |
| Spotted Dove | <i>Streptopelia chinensis</i> |
| House Swift | <i>Apus affinis</i> |
| Yellow-vented Bulbul | <i>Pycnonotus goiavier</i> |

Migratory Birds

- | | |
|-------------------------|-----------------------------|
| *Asian Brown Flycatcher | <i>Muscicapa dauurica</i> |
| *Oriental Honey-Buzzard | <i>Pernis ptilorhynchus</i> |

Forest Birds

- | | |
|----------------------|-------------------------------|
| Green-billed Malkoha | <i>Phaenicophaeus tristis</i> |
| **Large Woodshrike | <i>Tephrodornis gularis</i> |
| Red Junglefowl | <i>Gallus gallus</i> |

* Absent in 2004 records

** Absent in 1993 and 2004 records



Large-billed Crow



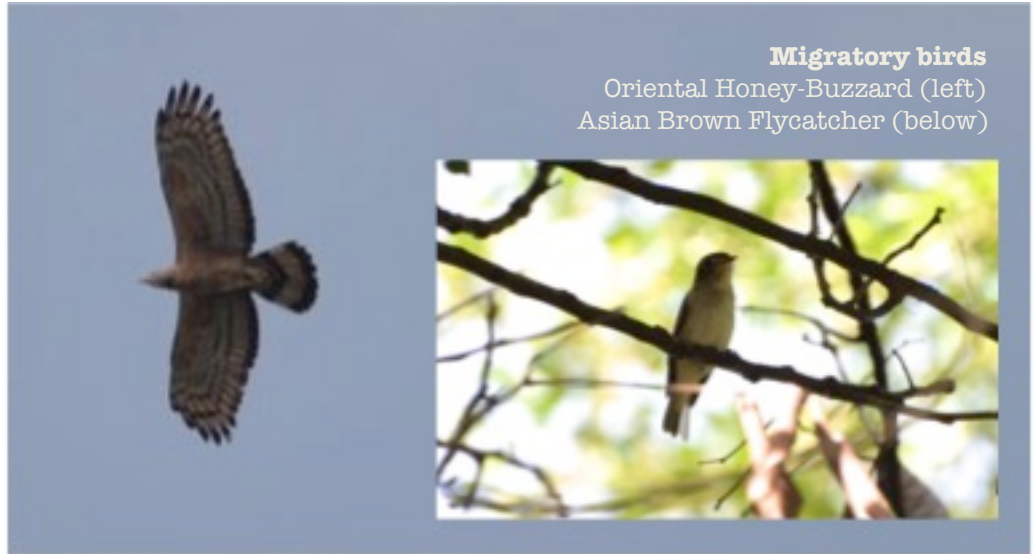
Large-tailed Nightjar



Asian Glossy Starling



Asian Koel



Migratory birds

Oriental Honey-Buzzard (left)
Asian Brown Flycatcher (below)



New record?

The Large Woodshrike was absent from official lists in 1993 and 2004. It is perhaps one of the "younger" species on campus.

Not only that . . .

**PROTECTED
WILDLIFE**

These birds are protected under the
Wildlife Conservation Act 2010, Act 716
(Akta Pemuliharaan Hidupan Liar 2010, Akta 716)

Plus the **Red Junglefowl** (Ayam Hutan), which we didn't manage to photograph.



Oriental Magpie Robin
Murai Kampung

**CONTROLLED
SPECIES**

FULLY-PROTECTED WILDLIFE



Rock Pigeon
Merpati



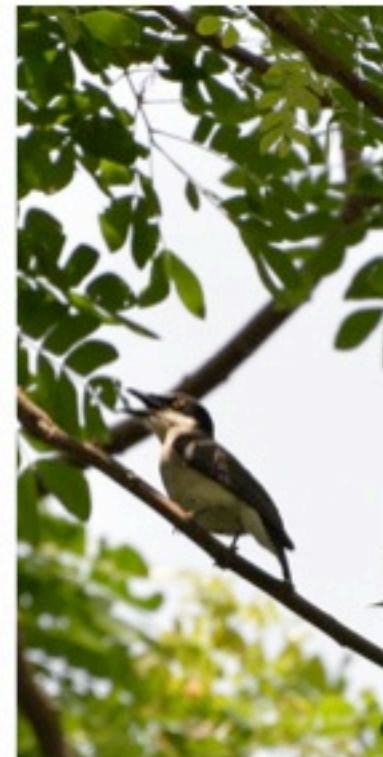
Pied Triller
Sewah Kapas



**Oriental
Honey-Buzzard**



Green-billed Malkoha
Cenok Kera



Large Woodshrike
Rembah Kayu Besar



Conservation Notes

The Green-billed Malkoha forages in dense foliage (e.g., A & B) and was spotted among the row of Pelong trees (C), as well as the tall trees around house No. 5 (D).

The Oriental Honey-Buzzard was observed roosting in house No. 9 (E) and in the Pelong trees (C).

The Large Woodshrike—typically observed “high in trees”—and the Pied Triller were spotted in the large Rain Tree at No. 23 (F).

Black-naped Orioles were abundant between Nos. 10 and 13 (G).

Glossy Starlings were abundant around the Pithraj Tree at No. 25/27 (H).



The Bengal Monitor, a fully-protected species under the Wildlife Conservation Act 2010

ELMU OTHER VERTEBRATES



Other Vertebrates

Mammals included bats (recorded in four houses), macaques and squirrels. Reptiles included the bizarre Blind Snake (no males are known to exist) and Spotted House Gecko which, in spite of its name, lives in forested areas.



Common Bronzeback



Common Toad



Blind Snake



Fruit bat



Malayan Slender Frog



Common House Gecko



Spotted House Gecko

Amphibians

Common Toad *Duttaphrynus melanostictus*
 Four-lined Tree Frog *Polypedates leucomystax*
 Malayan Slender Frog *Polypedates discantus*

Reptiles

Common Blind Snake *Ramphotyphlops braminus*
 Common Bronzeback *Dendrelaphis pictus*
 Common House Gecko *Hemidactylus frenatus*
 Bengal Monitor *Varanus bengalensis*
 Spotted House Gecko *Gekko monarchus*

Mammals

Fruit bat *Cynopterus* sp.
 Long-tailed Macaque *Macaca fascicularis*
 Squirrel *Callosciurus* sp.

Mammals, Reptiles and Amphibians



Conservation Notes

The Spotted House Gecko lives in forested areas with denser foliage (e.g., A & B). Blind Snakes live in the soil or in rotting wood, and are found in similar habitat as the gecko.

Frogs and toads were typically found in the shelter of forested areas (A & B), as well as in well-shaded drains below the Pelong trees (C) and outside the somewhat isolated house No. 20 (D).

Bats were observed roosting in Nos. 3, 26, 31 and 33 (E).

Reptiles and amphibians are important predators that help to keep animal populations in check. Bats help pollinate flowers, aiding in the reproduction of trees.



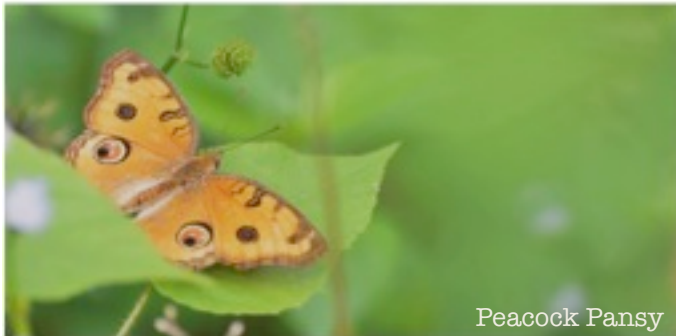
Common Ringlet (Photo: Daicus Belabut)

ELMU BUTTERFLIES



Butterflies

We recorded butterflies across all five butterfly families:



Nymphalidae (Brush-footed)

Plain Tiger	<i>Danaus chryssipus</i>
White Tiger	<i>Danaus melanippus</i>
Common Palmfly	<i>Elymnias hypermnestra</i>
Blue Glassy Tiger	<i>Ideopsis vulgaris</i>
Peacock Pansy	<i>Junonia almana</i>
Chocolate Pansy	<i>Junonia hedonia</i>
Common Sailor	<i>Neptis hylas</i>
Common Ringlet	<i>Yphtima</i> sp.

Papilionidae (Swallowtails)

Lime Swallowtail	<i>Papilio demoleus</i>
Common Mormon	<i>Papilio polytes</i>

Lycaenidae (Gossamer-winged)

Common Imperial	<i>Cheritra freja</i>
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Pieridae (Sulphurs)

Striped Albatross	<i>Appias libythea</i>
Lemon Emigrant	<i>Catopsilia pomona</i>
Painted Jezebel	<i>Delias hyperete</i>
Grass Yellow	<i>Eurema</i> sp.

Hesperiidae (Skippers)



Lemon Emigrant



Lime Swallowtail



Common Imperial



Common Mormon



A Common Palmfly rests on a fishtail palm leaf.

Butterfly-Plant Associations

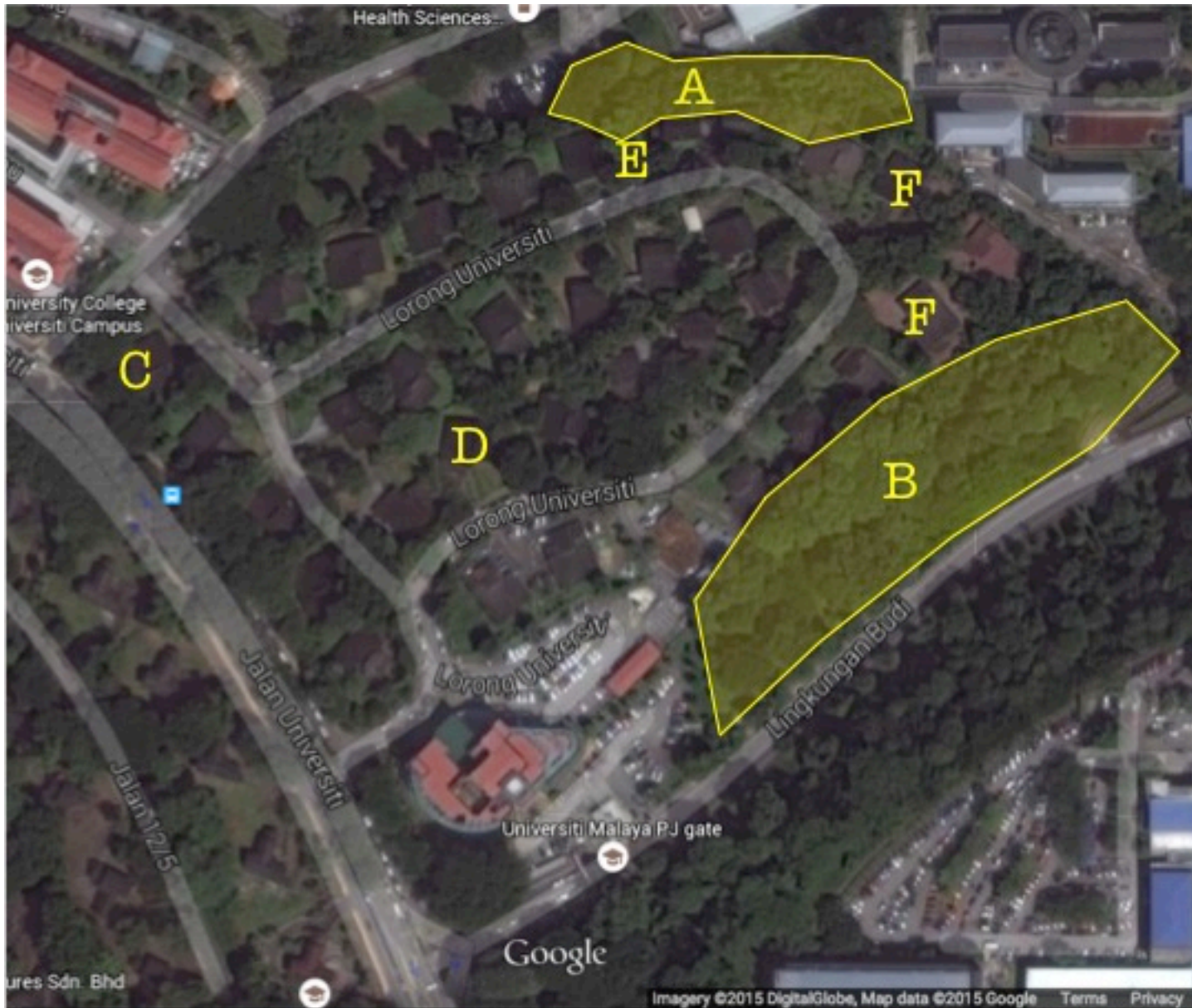
Some butterflies are known to associate themselves with specific plants. These “host” plants may be a breeding ground and source of food for caterpillars.

Lime Swallowtail & Common Mormon: citroids (e.g., limau purut)

Common Imperial: saga, wild cinnamon

Lemon Emigrant: johar/cassod tree

Butterflies



Conservation Notes

Butterflies with strong host plant associations were found in these locations:

The **Common Palmfly** was found in forest thickets (A & B) with lots of wild palms, and also in house No. 1 (C).

The **Common Imperial** was found in No. 27 (D).

The **Lemon Emigrant** was found around Nos. 10 and 12 (E).

Lime Swallowtails and **Common Mormons** were found in many places, but particularly Nos. 18 and 22 (F).

While butterflies are highly mobile, this information suggests that host plants are nearby.

ELMU OTHER INVERTEBRATES



Insect Diversity

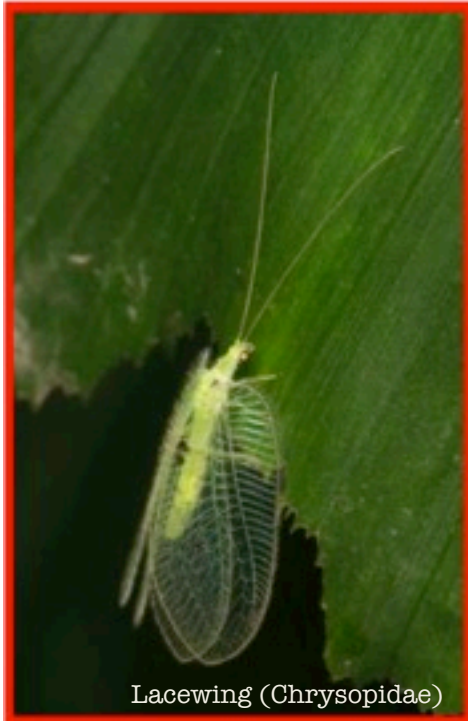
All sorts of insects can be found in Jalan Elmu, including some very colourful forest species. Highlights include fireflies, lacewings and stick insects, all seldom encountered in urban areas.



Cranefly (Tipulidae)



Katydid (Tettigonidae)



Lacewing (Chrysopidae)



Praying mantis
(Order: Mantodea)



Dragonfly (Order: Odonata)



Stick insect
(Order: Phasmatodea)



Ladybird (Coccinellidae)



Firefly, *Luciola* sp.



Cricket (Gryllidae)



Leafhopper (Cicadellidae)



Forest cockroach
(Order: Blattodea)



True bug (Reduviidae)



Giraffe-necked weevil
(Attelabidae)



Slug



Planarian (flatworm)



Centipede



Millipede



Common Garden Lynx



Decorative Leucauge



Common Box
Hamataliwa



Diamond-bellied
Crab Spider



Black-jaw Huntsman



Garden snail

In Thickets and Leaf Litter

Animals like slugs, millipedes and snails help break down decaying organic matter, like dead leaves, returning nutrients to the soil. Predators like centipedes, spiders and planarians (flatworms) feed on insects and other small animals, keeping their populations in check. Planarians are sensitive to humidity and therefore good bioindicators.



Life Bringers

Human activity can sometimes shape the environment for the better, restoring poor habitats and allowing sensitive species like dragonflies and fireflies (*above*) to survive.

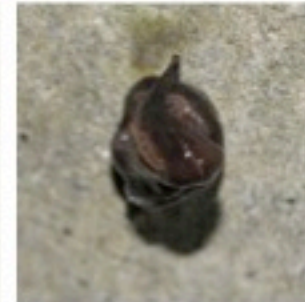
Water and Bioindicators

As a doctor can diagnose a disease by reading signs and symptoms, so can we make inferences about environmental health by studying selected bioindicators. For instance, clean water is necessary for the survival of semi-aquatic animals like dragonflies and frogs.

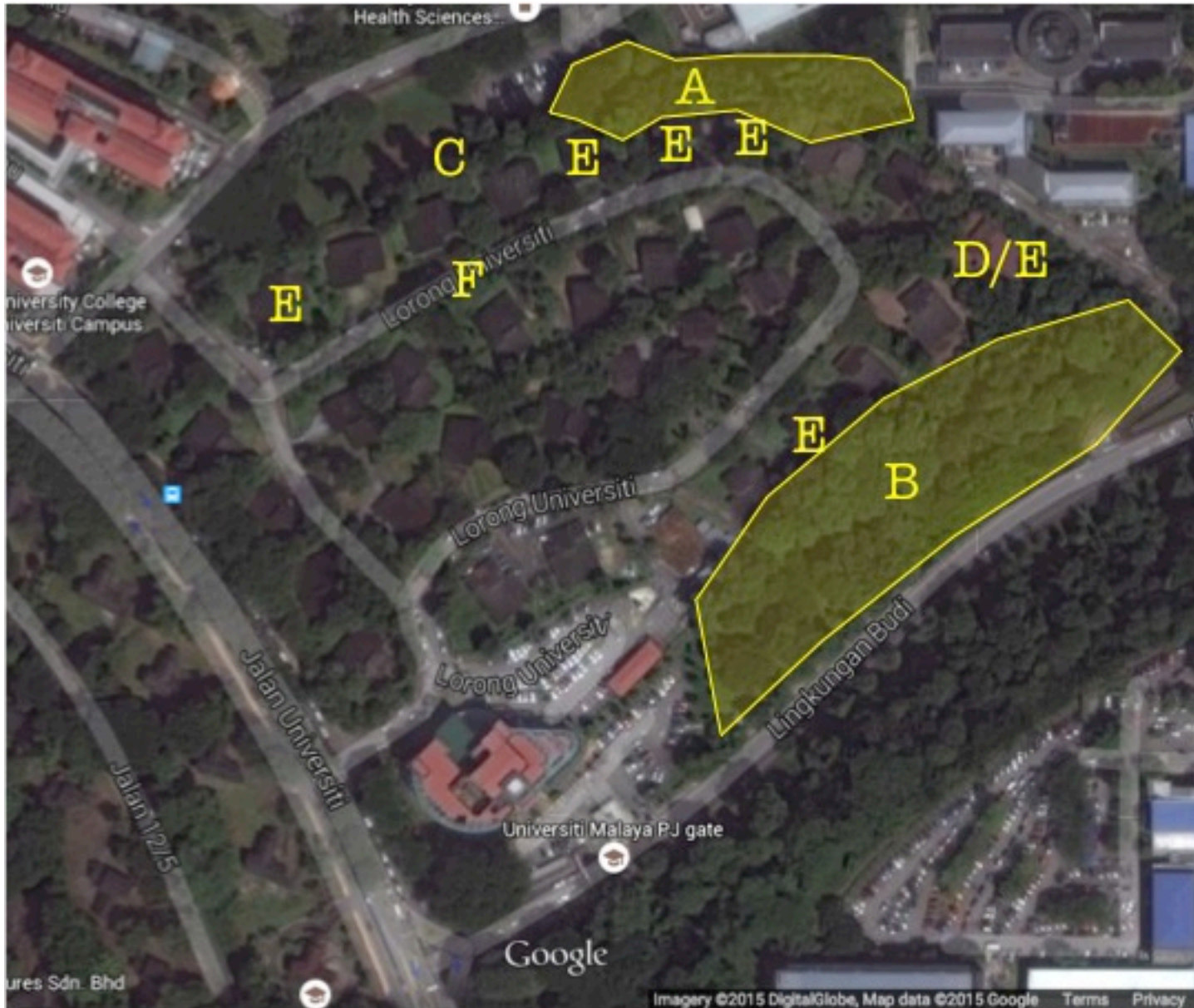
However, fireflies require more: clean *flowing* water. While it was discovered that the source of flowing water in house No. 14 was most likely a burst pipe, it is interesting to note how this shaped the terrain: palms and ferns, common in the forest understory, are growing well there. Once the pipe is fixed, can we somehow harvest rainwater and direct it into tiny surface streams to maintain the physical conditions required for these fascinating—and “at risk”—animals?

A Rare Encounter

We chanced to witness a rarely observed natural phenomenon: a planarian flatworm “wrestling” its slug prey.



Other Invertebrates



Conservation Notes

The largest variety of insects was observed along the shaded, dense-ish crescent from the field (C), through the forest patch (A), to the thicket area around house No. 20 (D).

Fireflies were detected around Nos. 2, 10, 12, 14 and 20 (E). This corresponds to the forestlike conditions (e.g., in A) required as a habitat for snails, the natural food/prey of fireflies.

Planarians and slugs were found on the grassy slopes near Nos. 6 and 11 (F), as well as in the forested areas (A & B).



The tree-canopy "bridge" connecting Jalan Elmu to Section 12 via the road divider on Jalan Universiti

ELMU CONSERVATION



Recommendations



- Retain fragmented forests (A & B) and find ways to **amplify regeneration**—merge with Pelong field (C) and vegetation around No. 20 (D).
- Retain a **vegetation screen** on Jalan Universiti (E) and protect all big trees in the houses facing the road. This area is also a bat hotspot.
- We urge caution with disturbing houses No. 21, 23, 25 and 27 (F), as this is the **“epicentre” of some large trees** and lots of birds.
- For the long term, a **multi-story parking solution** could be looked into for Nos. 32 and 34 (G). Car parks should be built vertically, like trees!
- Dotted lines indicate potential flight patterns between patches.

Big Picture: Connecting the Fragments



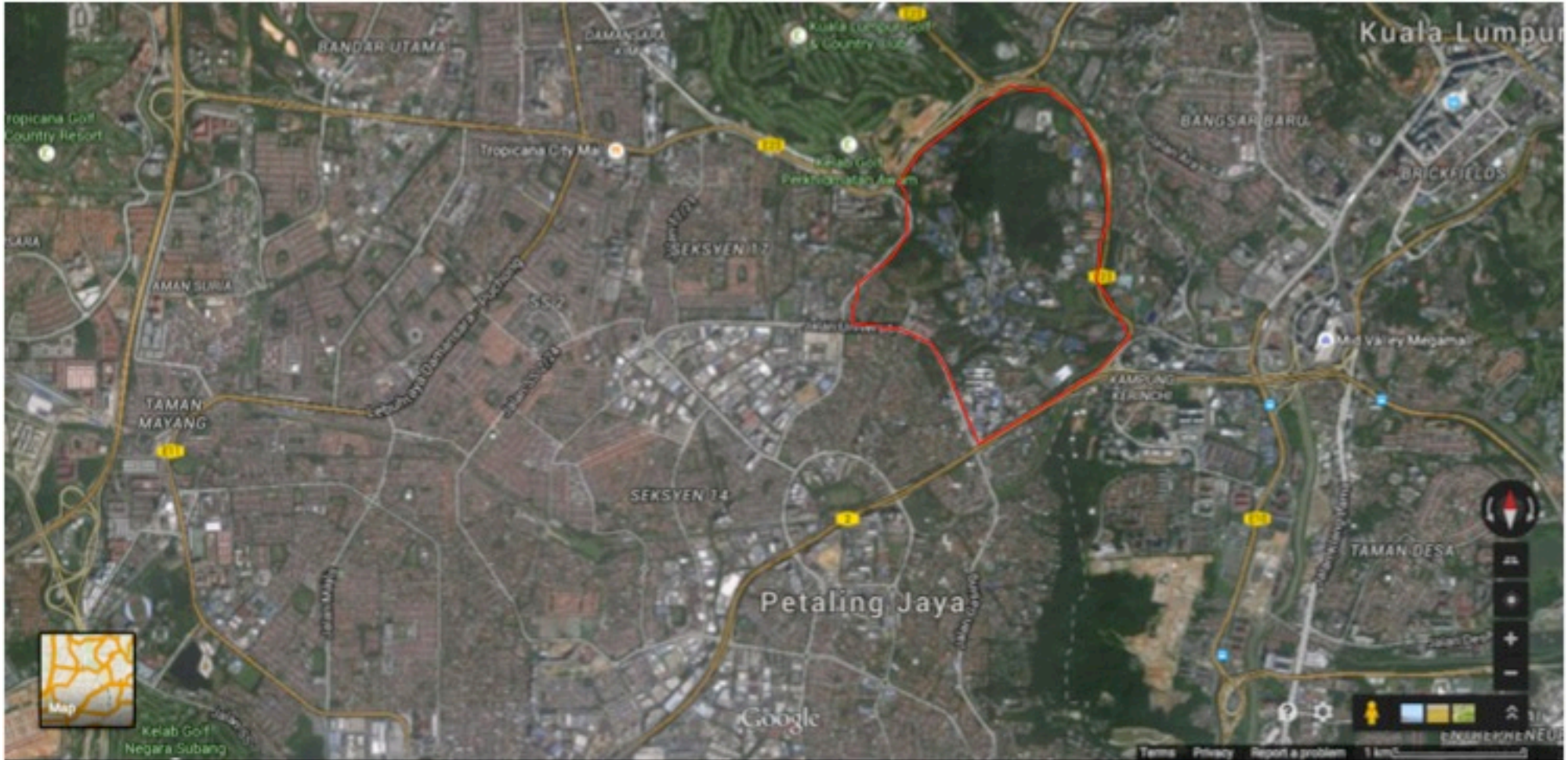
Highway A50, Netherlands. (Photo by [Niels Verheul](#).)

The Section 12 bungalows (A) cover approximately 5.4 ha (13 acres) of land. Collectively, Section 12 and the Jalan Elmu nexus (B) account for over 30 acres.

However this area is developed, there ought to be enough space for local wildlife to survive and thrive.

This is where we will need creative ideas—perhaps even designs as unusual and singular as “wildlife bridges” or “ecoducts” (*above*).

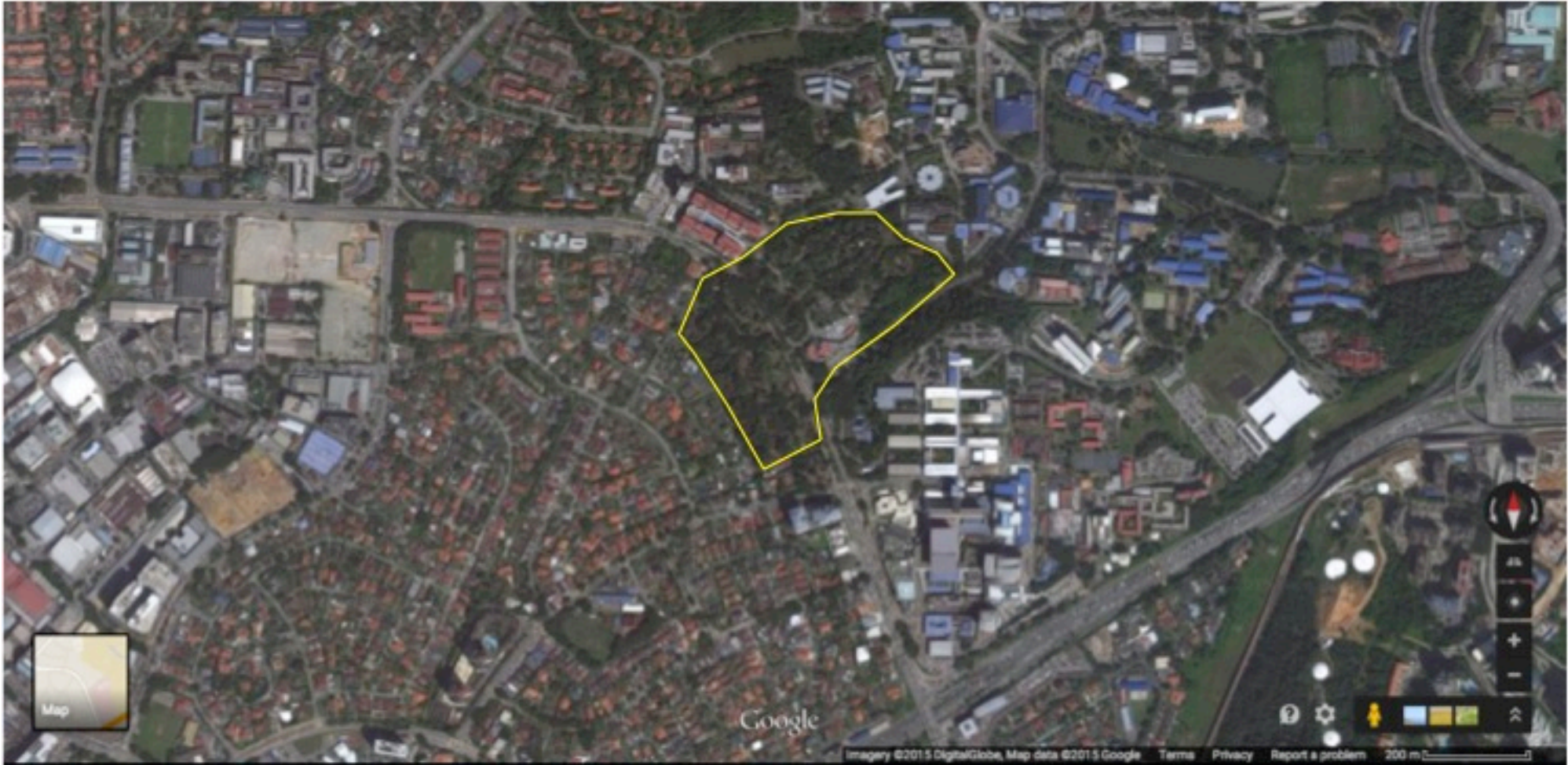
Let's be realistic . . .



Besides Bukit Gasing (130 ha) to the south, **UM (100 ha) is the only significant green space** for the whole of Petaling Jaya Selatan, Bangsar, Kerinchi and Pantai Dalam. (Kelab Golf Perkhidmatan Awam does not count!)

MBPJ's tagline: **"Petaling Jaya Bandaraya Berdayahuni (Livable) dan Dicintai (Lovable)"**

Opportunities!



We have an opportunity to **write a new chapter for collaboration** between typically disparate organisations (JPPHB, UMSC and the medical world, ecologists, Residents Association, etc.) to **create something novel** in a city university/hospital/residential setting.

Section 12 Biodiversity Park

Turn to page 60 for more images of Section 12

Landmarks:

P UMSC

Q Inst. of China Studies

Zones:

A Large trees on slope

B Forest trees backbone

C Forest and foraging

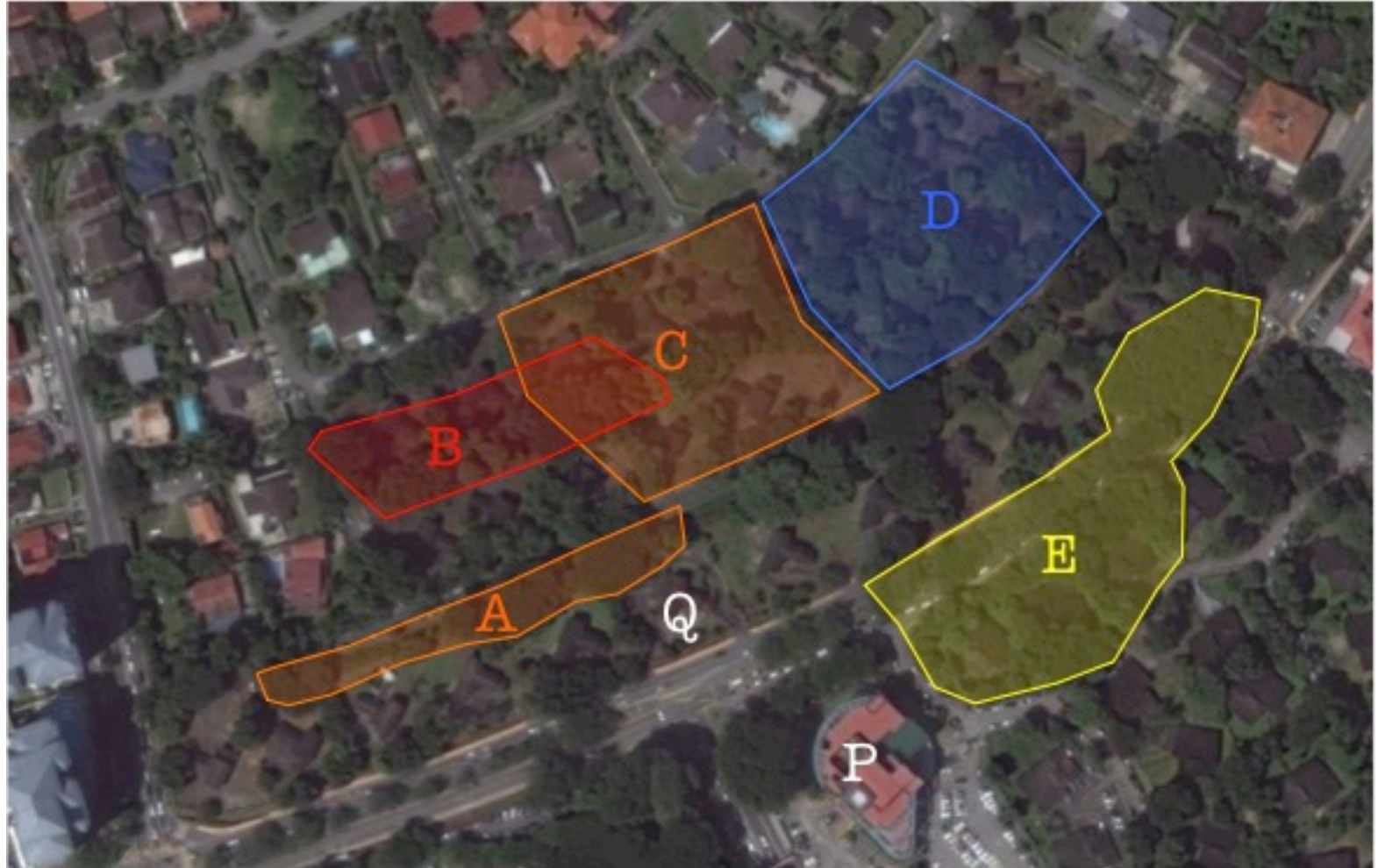
D Wet zone

E Canopy bridge

Section A should be preserved as a screen and shade. Don't level slope if possible; build "according to the land."

It has been proposed that three (3) bungalows be retained as part of the conservation initiative.

Possible new uses:



House 1: Learning Centre

Admin, library, gallery/exhibition, souvenir shop, cinema, training room, ethnobotic kitchen, café/dining, outdoor performance stage, events space (open for rental)

House 2: Urban Retreat Centre

Scaffold beds, guestrooms, bike and tent storage, camping space

House 3: Activity Hub

Field station for outdoor activities, conservation nursery. Link up with Water Warriors, ZWC, Kolam Mustafa, Rimba Ilmu, etc.

Jalan Elmu Biodiversity Park

With some foresight, good design and security management, we can create recreational and restorative green spaces in the midst of the city— **UMParks** and not just UMPark(ing lots). The beauty and richness of the landscape will augment and complement any future developments in the area.

Guided by the principle of habitat conservation, these spaces would feature a park-style design, with more trees and footpaths added, and with a view to strengthening the existing—but fragmented—forest patches. It would be a recreation and conservation zone, designed to have a “natural” look, and with minimal disturbance to the existing environment.

Section 12 will be designed with **events** and **education** in mind. The Elmu side will focus on **exploration** and **experience** in a heart-shaped core, with forest “wings”—Elmu and Budi—to reflect the strong presence of birds in the area.

Landmarks:

P UMSC

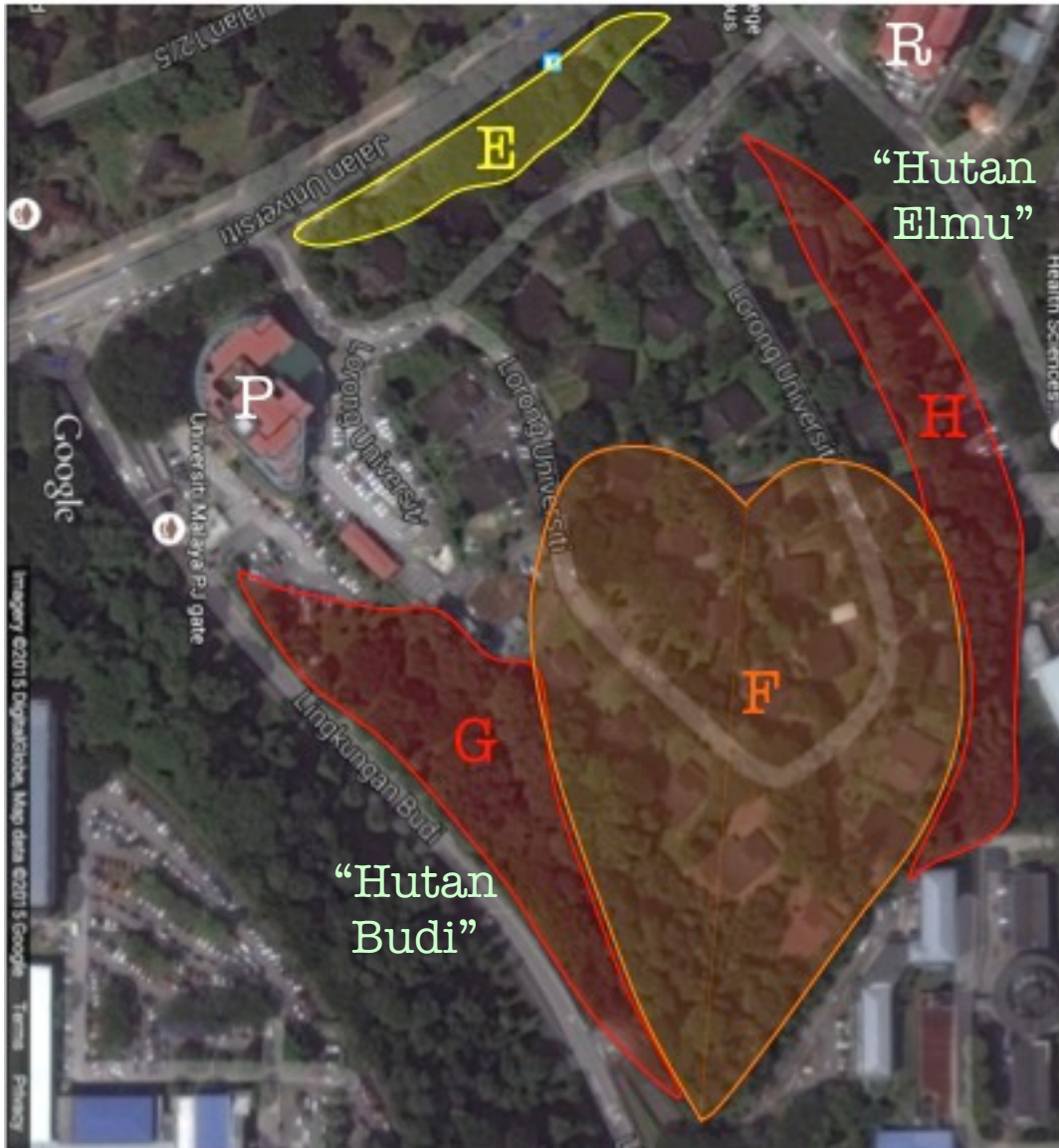
R MAHSA University

Zones:

F The heart of the park

G Budi forest (Hutan Budi)

H Elmu forest (Hutan Elmu)



Global Perspective

More than half of the world's population now lives in cities.

“While cities concentrate opportunities, jobs, and services, they also concentrate health hazards and risks.”

World Health Organization (WHO)

Among the **WHO Health Indicators** cited for sustainable cities are:

- Urban air quality / particulate pollution
- Healthy, efficient transport, including walking and cycling
- Access to urban services like green spaces

Indicators for **ISO 37120:2014** (City Services and Quality of Life) include:

- Green area per capita
- Noise pollution
- Loss of native species
- Public outdoor recreation space

**The Elmu/Section 12 conservation zone
can directly address ALL these needs and more!**

Local Perspective

The Health Metropolis (HM) is a noble venture aimed at supporting efficient, cutting-edge healthcare while helping UM generate income towards self-sufficiency.

HOWEVER

Is the Elmu/Section 12 nexus the *right* place?

Local council guidelines suggest that only the row of houses fronting Jalan Universiti may be converted from residential to limited commercial.
(Rancangan Tempatan Petaling Jaya 1, 2007)

The HM is expected to generate an initial population of about 3,000 at the beginning of operations—with a projected total of 10,400 persons in time to come. With the existing traffic conditions and no sign of increased public transport in the area, this will likely only aggravate local congestion.

And is it worth losing so much green cover for this?

Whatever we do will have implications for conservation, urban health and community engagement. **There is still time to try a better way.**

It is said that children today can recognise more brand logos than plant species. As a complement to formal education, this space is **ideal for rediscovering nature in a safe, convenient and accessible location**. It is also home to plants with various medicinal and culinary uses, which we can highlight in an “ethnobotanic experimental kitchen,” reconnecting with our heritage.

EDUCATION

COMMUNITY

As population density steadily increases, we critically need buffers between residential neighbourhoods and busy commercial developments. In the face of compromised livability, our green spaces can be **a solution for family recreation, solitude and urban wellbeing** amidst the city’s hustle and bustle. We are already in a strategic location to serve communities in Sections 10 through 17, and beyond.

PJ needs more green lungs. Besides providing relief from heat and a screen against noise, green spaces provide lots of fresh air and help reduce the risk of flooding by absorbing excess rain better than most drains. **A biodiversity park can complement UM's health initiatives** by acting as a centre for learning and preventive medicine, and as a therapeutic space for convalescing patients to take walks, etc.

HEALTH

CONSERVATION

The wilderness is in our midst: through careful design and development, we can help **reconnect forest fragments and regenerate wild zones**. A shared biodiversity park, where natural wildlife is connected with sensible development via strategic buffer zones: a haven and refuge for plants, animals, and humans alike. We need an integrated management plan for this “backyard biodiversity.”



Urban revitalisation begins here!

As our cities continue to grow, we must not abandon the protection of natural areas [...] but should instead defend such places, and indeed **try to create new space for nature within the urban fabric**—even within the centres of cities. We also need to make nature more accessible to people, providing interpretation and education wherever possible.

Ted Trzyna, IUCN

Reconnecting forests
Rebuilding biodiversity corridors
Restoring the urban heart

Today, we can start designing a better world. A healthier, more beautiful and richer environment. We can sow the seeds of improved urban wellbeing right here in the city, **that the children of tomorrow may rediscover nature up-close, in their backyards.** That may have as meaningful and real a life as the children of the past.

A world where it can actually be **healthy to live in the city,** where our eyes will not always have to rest on concrete, glass and steel. Where there can be greenery and flowing streams to calm our eyes, the calls of birds and insects to soothe our souls. If this sounds impossible, it's because we've been telling ourselves "bad news" stories all this while—stories of what *can't* be done.

It's time to create some good news. And it's time for UM to lead the way again. So think about it, because **the future is every decision we make today.**

ELMU BEHIND THE SCENES





In a bigger world
Squeezing through tight spots (*left*) and navigating our way around large trees (*right*).



Waiting and chasing
Some animals, like birds, required a lot of patient waiting (*above*). Others, like butterflies, called for energetic chasing (*below*).



Day and night
Fieldwork involved sampling for nocturnal animals (*above*), as well as mapping trees (*right*).



The RIMBA Project

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Technical Support

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Museum of Zoology
Rimba Ilmu
Sustainability Science Cluster
UMCares

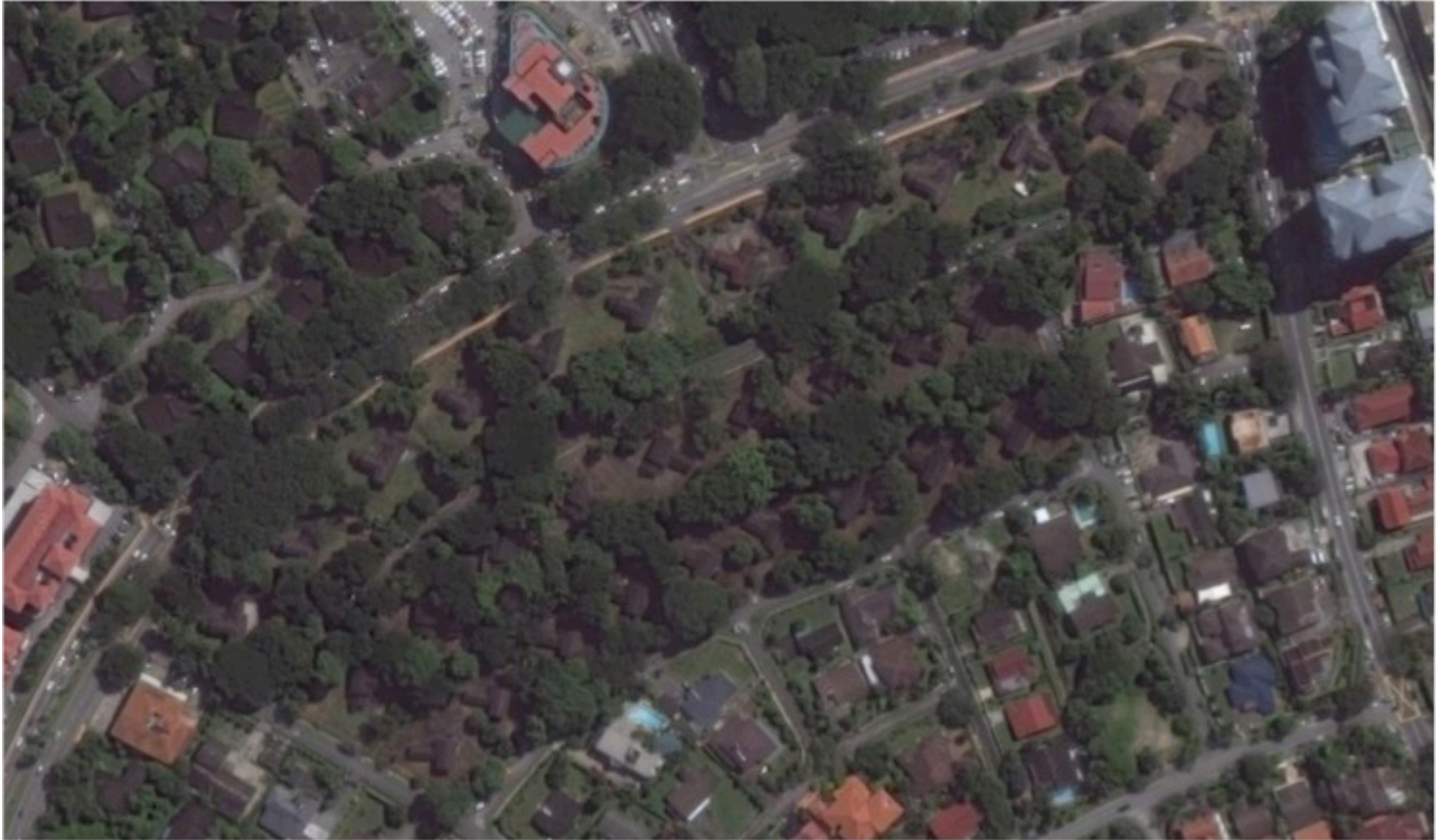
Special thanks to En. Fais and
En. Bob (JPPHB) for house access.



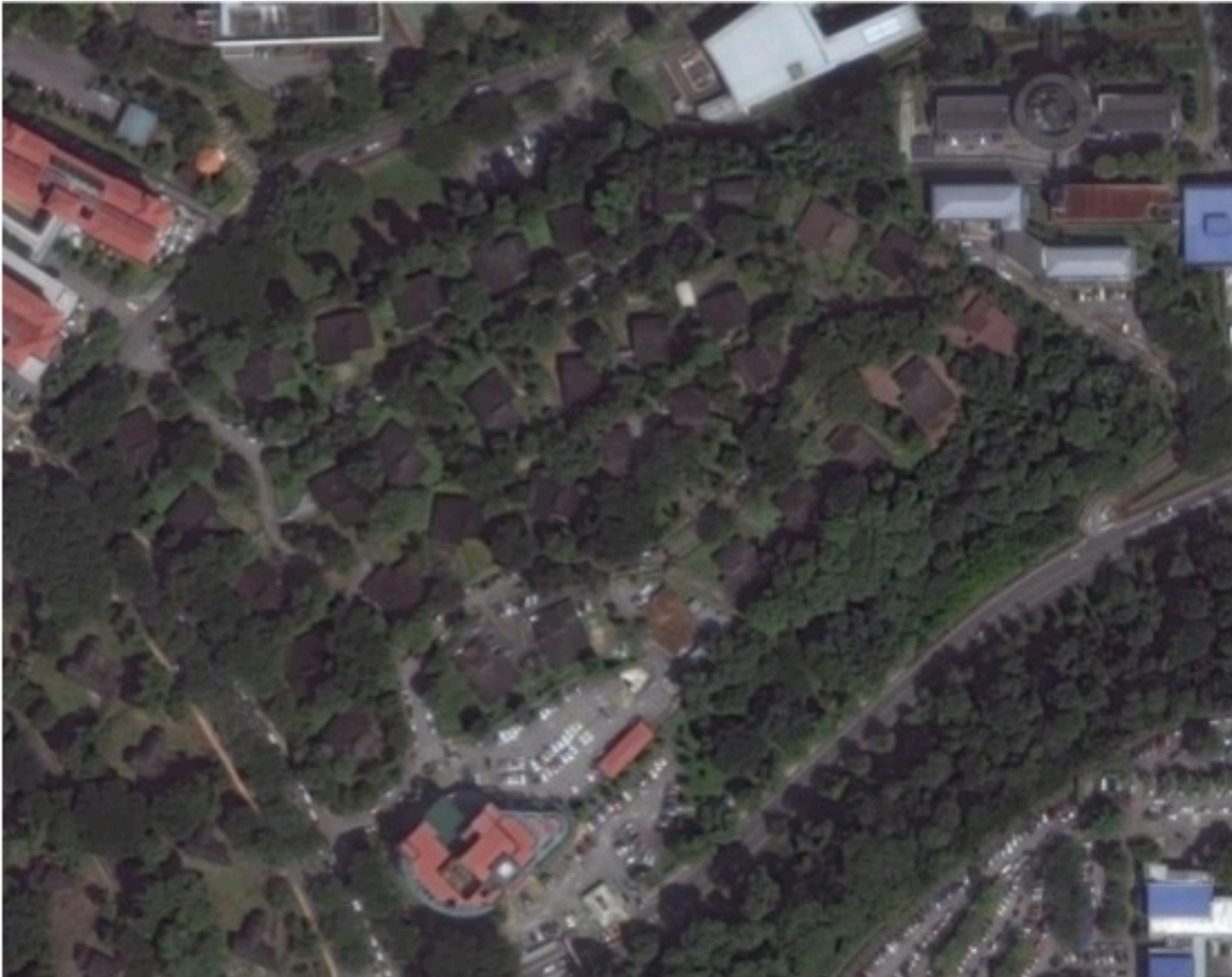
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Appendix: Section 12 Aerial Image



Appendix: Jalan Elmu Aerial Image



Appendix III: Scenes from Section 12

Bioindicators

As in Jalan Elmu, we found environment-sensitive animals like frogs, snails and fireflies that live in or near clean aquatic environments.



The Health Metropolis

This ambitious development will require a comprehensive traffic solution (e.g., better public transport) in order to be feasible.



An urban refuge

If developed conscientiously, the Section 12 area can be a conducive space for peace and solitude amidst the hustle and bustle of the city.



A forest is regrowing

Surrounded by residential, institutional and commercial development, a dense thicket (*above*) and some very large trees (*right*) have established themselves.

