



rimba

The Section 12 Project

Biodiversity Survey and Action Plan  
by The RIMBA Project  
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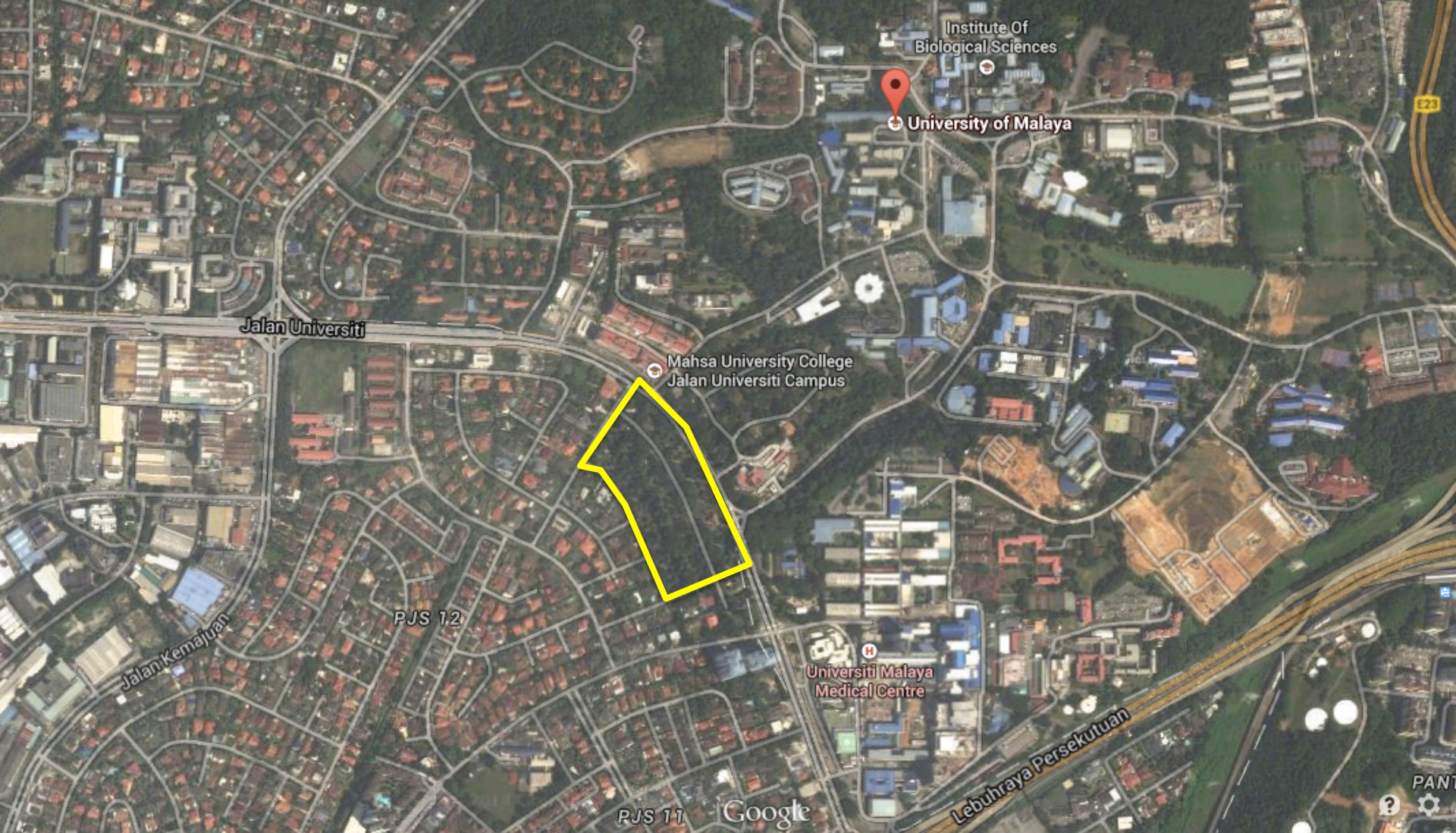
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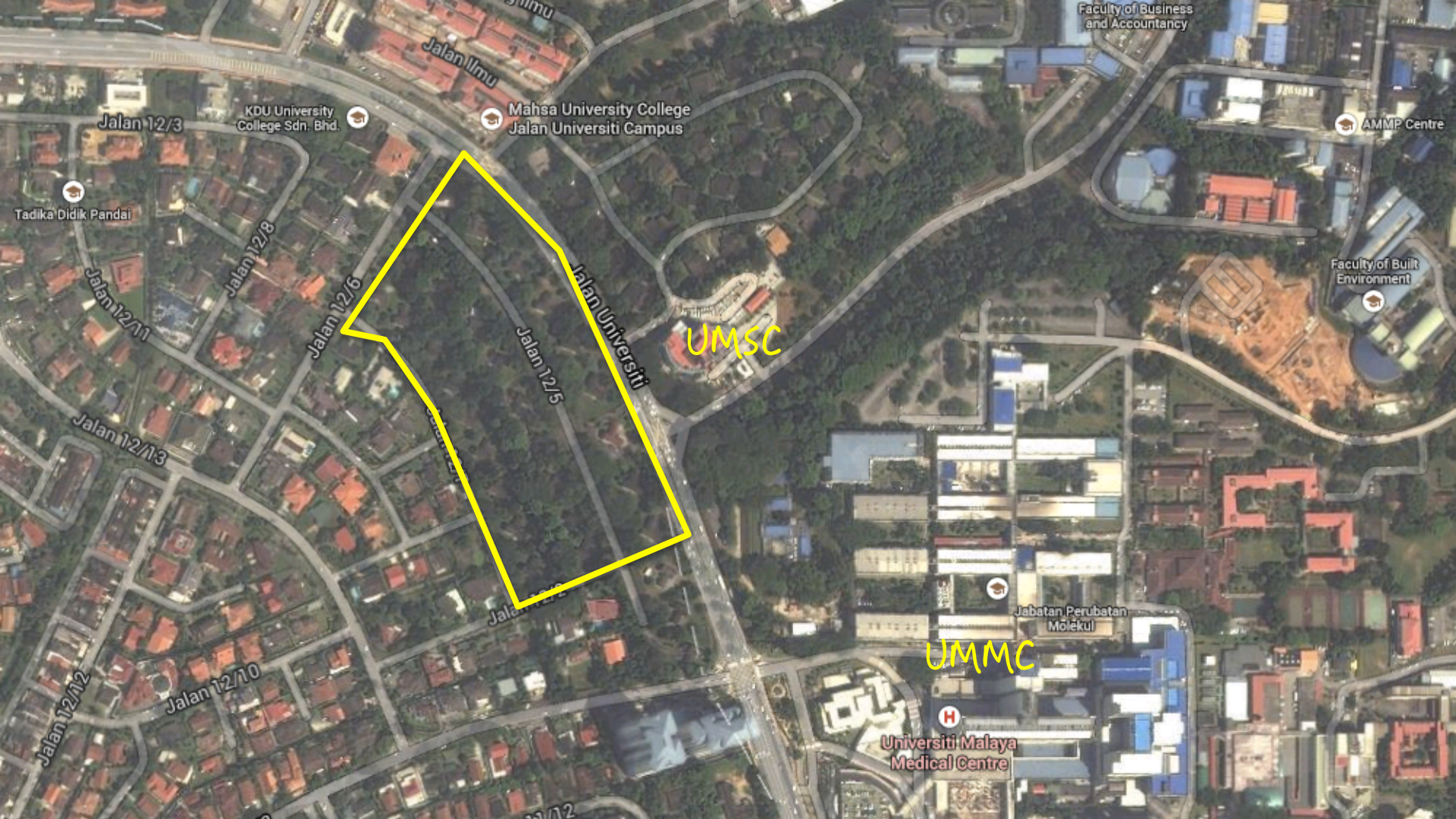


[http://etp.pemandu.gov.my/Healthcare-@-Healthcare\\_-\\_EPP\\_6-;\\_Developing\\_a\\_Health\\_Metropolis-;\\_A\\_World-Class\\_Campus\\_for\\_Healthcare\\_and\\_Bioscience.aspx](http://etp.pemandu.gov.my/Healthcare-@-Healthcare_-_EPP_6-;_Developing_a_Health_Metropolis-;_A_World-Class_Campus_for_Healthcare_and_Bioscience.aspx)

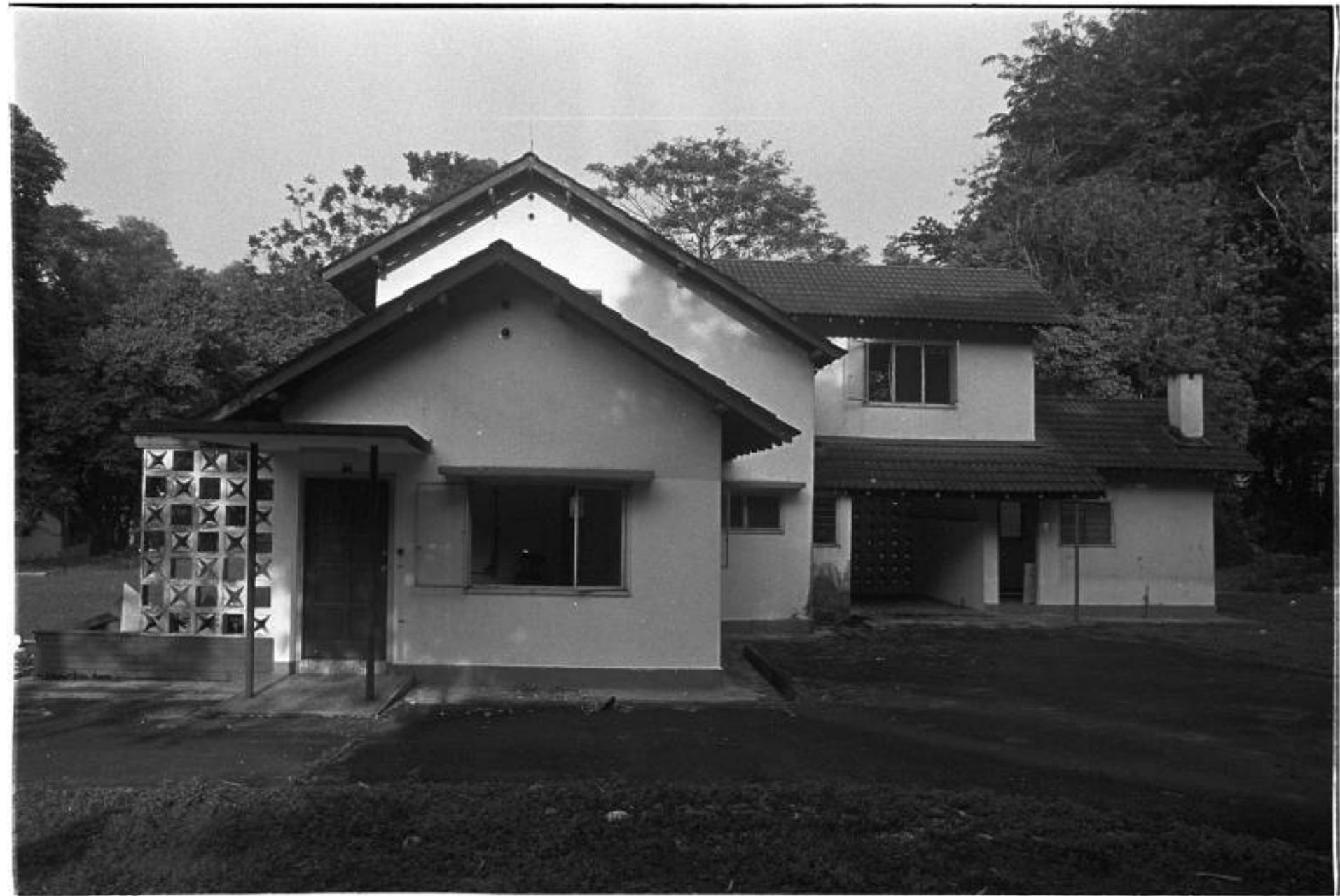
*The proposed UM Health Metropolis in Section 12, PJ will increase UM's "healthcare" land by some 30%. But does this illustration give the false impression that it will be surrounded by acres upon acres of parkland?*



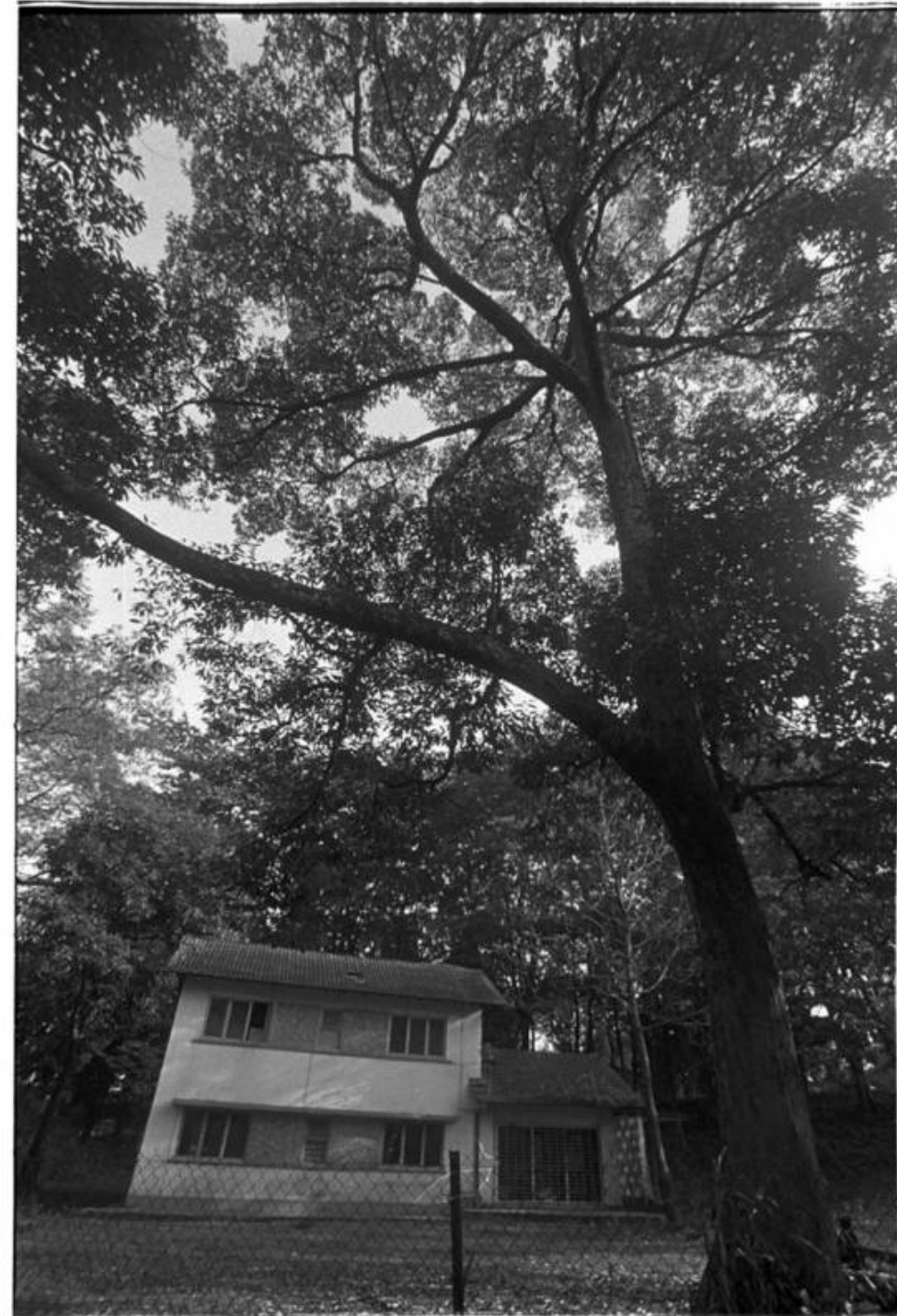
*The reality is that this is one of the greenest patches in the immediate surroundings.*



And we are concerned because the nearest hospitals – UMMC and the UMSC – are not particularly “green” places.



*We don't get houses like this anymore...*



*Giant durian tree – in the city!*



*Beautiful, majestic canopy of the Rain Tree*





*Will convalescing patients get such a lush and refreshing view when they look out of their ward windows?*

DVC (D) Prof. Rafiq invited us to

Document the houses, flora and fauna

Put forward solutions for the  
mitigation of biodiversity loss

And so, after three weeks we completed our field work with the help of a team of first-year undergrad volunteers.



*We trudged through a belukar in the bandar*



*Hugged some really large trees*



*Did field work by day*



*And some at night*



*Often in the rain!*

# Our Sincerest Appreciation

To the undergraduate (first-year, no less!)  
and postgraduate volunteers who organised and  
conducted the field work.



And now we present...

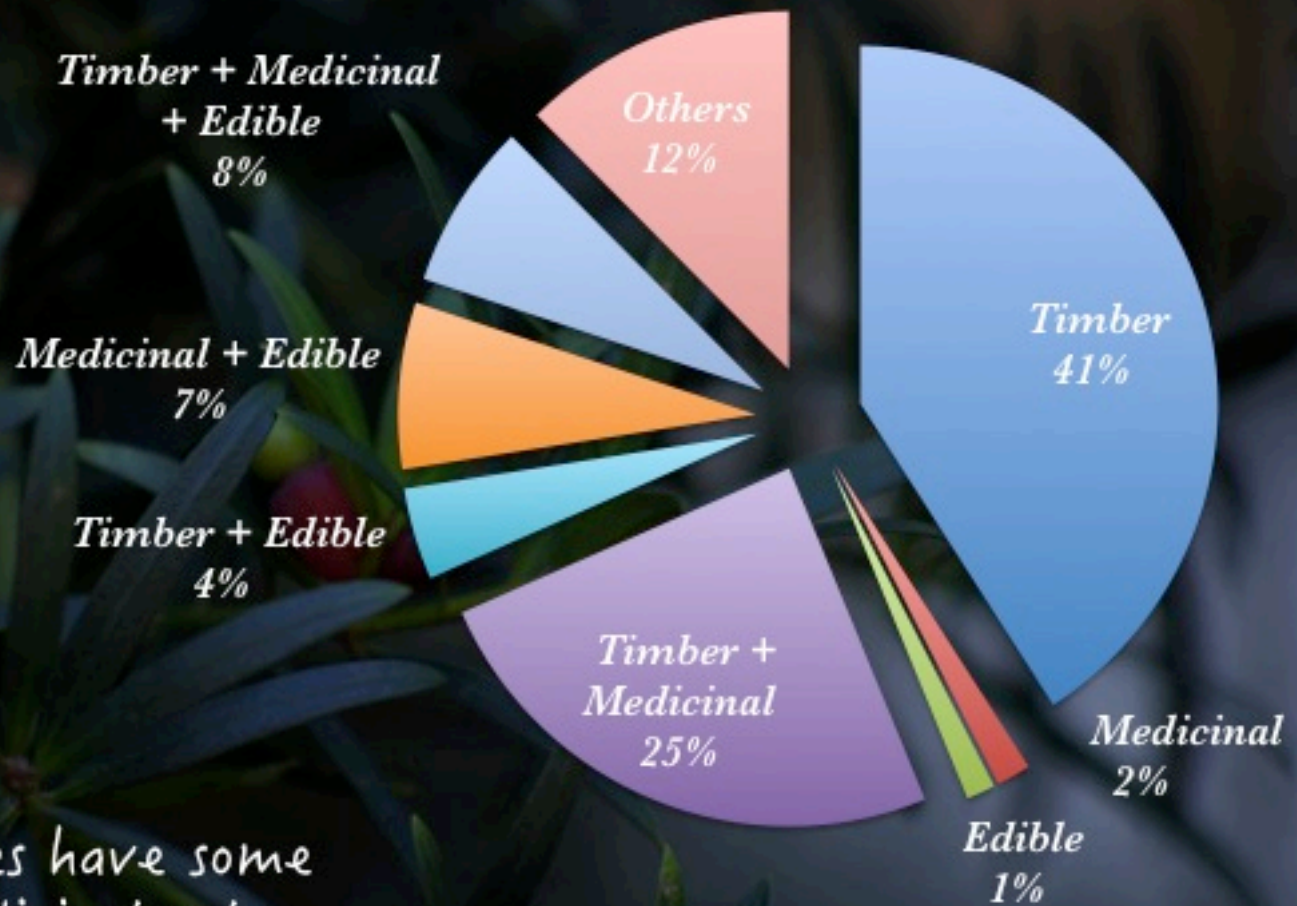
**The RIMBA Section 12  
Biodiversity Survey**

# Biodiversity of Trees in Section 12



A total of 386 trees of 47 species were documented

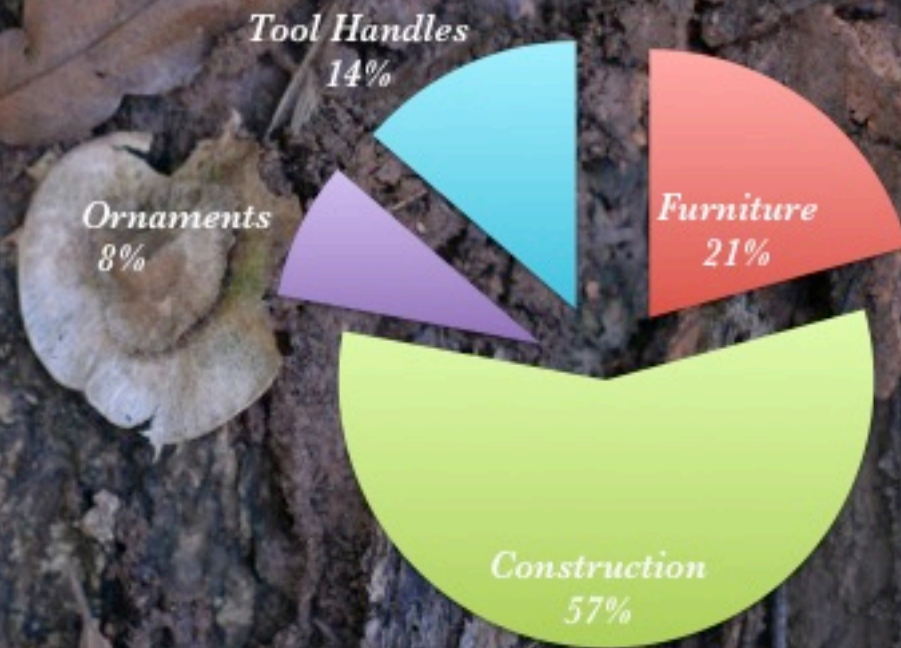
# Uses of Section 12 Trees



88% of these trees have some commercial or medicinal value.

# Timber Trees of Section 12

A total of 306 trees (25 species) have timber uses.  
The usability also depends on the size of the tree!



# Big Trees of Section 12



1	<i>Ficus benjamina</i> – 5m	6	<i>Albizia saman</i> 120 cm	11	<i>Syzygium grande</i> – 102 cm
2	<i>Cyrtophyllum fragrans</i> – 190 cm	7	<i>Calophyllum inophyllum</i> 120 cm	12	<i>Adenanthera pavonina</i> – 96 cm
3	<i>Pterocarpus indicus</i> – 150 cm	8	<i>Peltophorum pterocarpum</i> – 120 cm	13	<i>Terminalia catappa</i> – 86 cm
4	<i>Eleaocarpus nitidus</i> – 130 cm	9	<i>Albizia saman</i> – 115 cm	14	<i>Terminalia catappa</i> – 86 cm
5	<i>Terminalia catappa</i> – 129 cm	10	<i>Peltophorum pterocarpum</i> – 108 cm	15	<i>Syzygium grande</i> – 85 cm

All measurements diameter

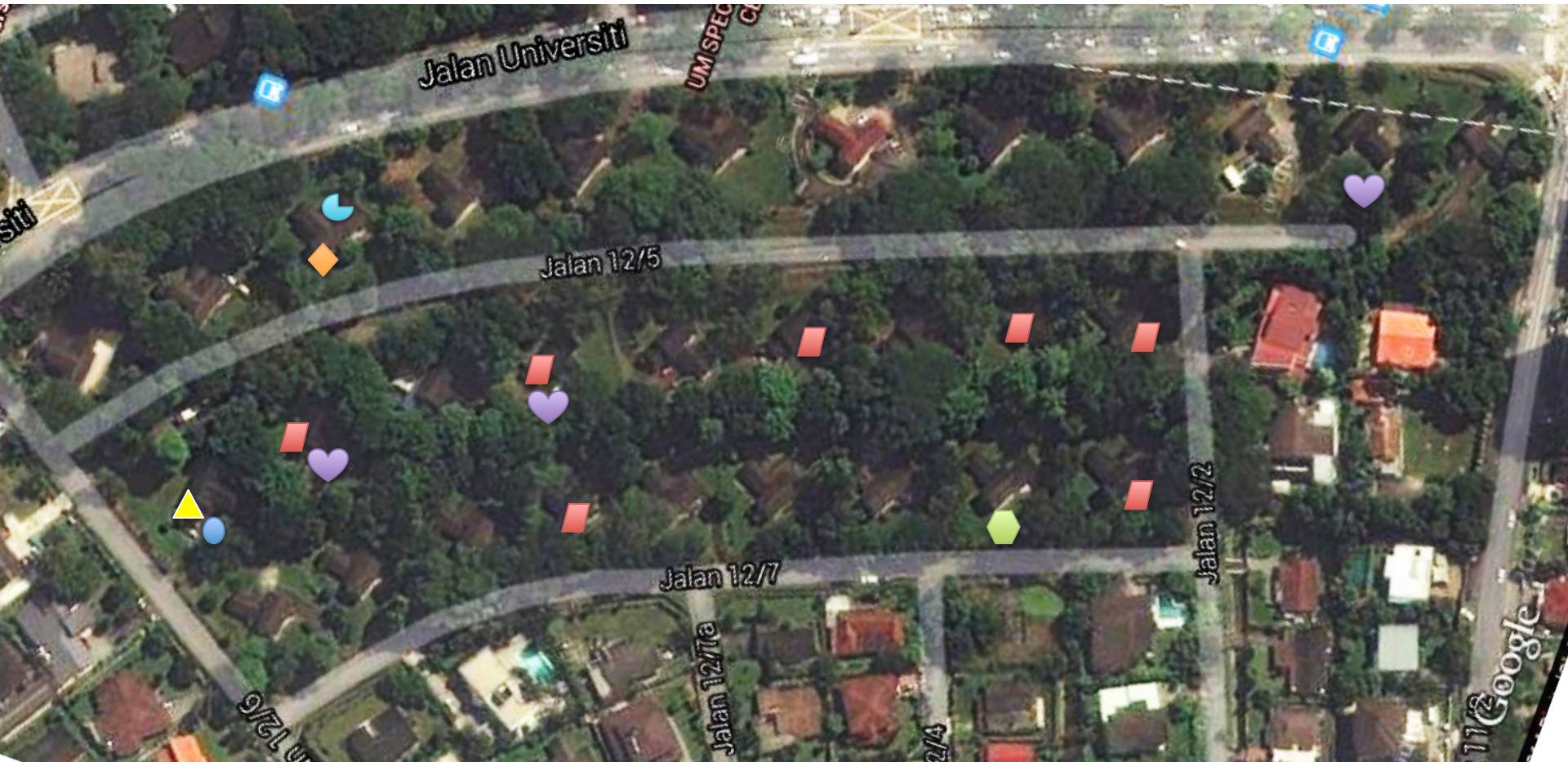
# Big Specimens of Timber Species










1	<i>Cyrtophyllum fragrans</i> - 190 cm	6	<i>Adenanthera pavonina</i> - 96 cm	11	<i>Vitex pinnata</i> - 65 cm
2	<i>Albizia saman</i> - 120 cm	7	<i>Syzygium grande</i> - 85 cm	12	<i>Vitex pinnata</i> - 60 cm
3	<i>Calophyllum inophyllum</i> - 120 cm	8	<i>Vitex pinnata</i> - 84 cm	13	<i>Albizia saman</i> - 59 cm
4	<i>Albizia saman</i> - 115	9	<i>Adenanthera pavonina</i> - 78 cm	14	<i>Adenanthera pavonina</i> - 57 cm
5	<i>Syzygium grande</i> - 102 cm	10	<i>Adenanthera pavonina</i> - 71 cm	15	<i>Calophyllum inophyllum</i> - 55 cm

All measurements diameter

# Seedlings of Section 12



- |  |   |   |
|--|---|---|
|  <i>Adenanthera pavonina</i>    |  <i>Calophyllum inophyllum</i> |  <i>Terminalia catappa</i> |
|  <i>Archidendron pauciflorum</i> |  <i>Microcos tomentosa</i>     |   |
|  <i>Bridellia tomentosa</i>      |  <i>Syzygium grande</i>        |   |

# Medicinal Plants of Section 12



# Neem

Leaf tinctures used as a tonic for health or to cure malaria

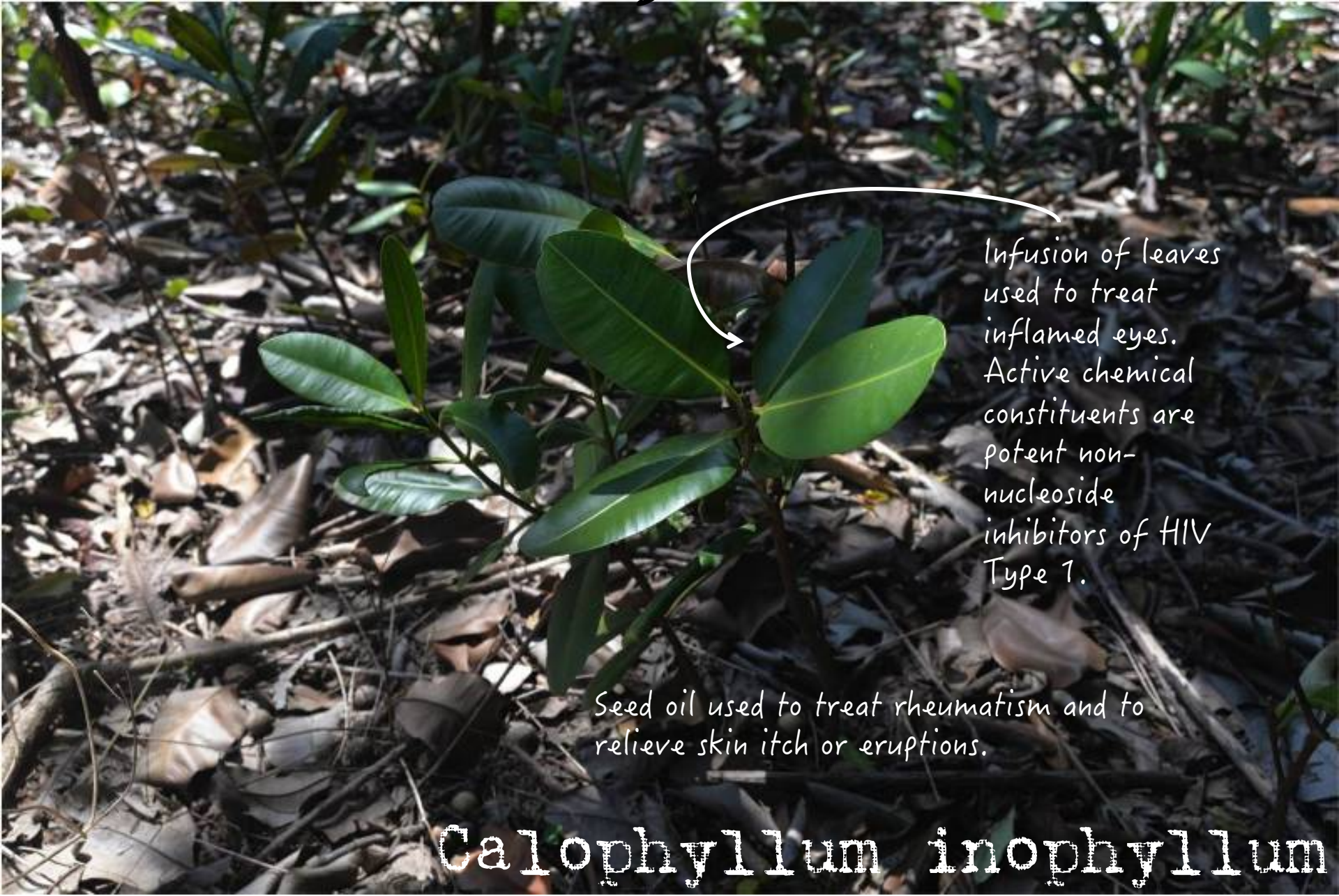
Powdered root bark as an astringent or to cure fevers

Seed oil as an antiseptic for wounds and skin diseases

Has potential as a natural alternative to synthetic insecticides

*Azadirachta indica*

# Bintangor Laut



Infusion of leaves used to treat inflamed eyes. Active chemical constituents are potent non-nucleoside inhibitors of HIV Type 1.

Seed oil used to treat rheumatism and to relieve skin itch or eruptions.

**Calophyllum inophyllum**

# Rangoon Creeper

Juice of leaves can be applied to boils and ulcers to hasten healing.

Decoction of fruits and seeds can be used to treat diarrhoea or intestinal worms.

Combretum (Quisqualis) indicum

# Noni



Fruits can be eaten to treat diabetes, or to reduce fever.

Young shoots and fruits can be eaten as ulam.

Use a hot compress of dried leaves on the chest for coughs and fever, or on the abdomen for colic or nausea.

**Morinda citrifolia**

# Kaduk

Eat the shoots and young leaves as ulam  
— low in fat, with 8 minerals and 6  
vitamins, and high antioxidant activity!

When pounded, leaves  
can be applied as a  
poultice for  
headaches.

Leaf decoction is ingested to treat  
coughs, flu and rheumatism, or as a  
body rub for weakness and bone  
pain.

Piper sarmentosum

# Akar Mempelas

An infusion of the stem can be used as a mouth gargle against thrush and sore throat.

Leaves are pounded and applied to relieve itch or hasten the rupture of boils.
















The root is used to arrest diarrhoea or to treat mouth ulcers.

*Tetracera scandens*

# Habitat Destruction: Animals at Risk

# Some forest butterfly species, rare in the city



- |   |                        |   |                             |   |                        |   |                            |
|---|------------------------|---|-----------------------------|---|------------------------|---|----------------------------|
|  | <i>Appias libythea</i> |  | <i>Elymnias hypermnesta</i> |  | <i>Junonia orithya</i> |  | <i>Papilio dissimillis</i> |
|   | <i>Acraea sp.</i>      |  | <i>Euploea algae</i>        |  | <i>Junonia hedonia</i> |  | <i>Ypthima sp.</i>         |
|   | <i>Cepora pomona</i>   |  | <i>Eurema sp.</i>           |  | <i>Neptis sp.</i>      |  | <i>Mycalesis sp.</i>       |
|   | <i>Chritera freja</i>  |  | <i>Ideopsis vulgaris</i>    |  | <i>Neptis hylas</i>    |   |                            |



# Birds



Crested Serpent Eagle  
(*Spilornis cheela*)

[http://orientalbirdimages.org/birdimages.php?action=birdspecies&Bird\\_ID=838&Bird\\_Image\\_ID=41605&Bird\\_Family\\_ID=%3Cbr](http://orientalbirdimages.org/birdimages.php?action=birdspecies&Bird_ID=838&Bird_Image_ID=41605&Bird_Family_ID=%3Cbr)



Brahminy Kite  
(*Haliastur indus*)


<http://karldawson.deviantart.com/art/brahminy-kite-1-258767577>



White-throated  
Kingfisher (*Halcyon  
smyrnenensis*)

<https://burneysbirdblog.wordpress.com/2014/04/07/vietnam-nam-cat-tien-national-park-bird-log/white-throated-kingfisher-ns1/>

# Amphibians

A photograph of a Dark-sided Chorus Frog (Microhyla heymonsi) on a dark, wet ground. The frog is small, with a brownish-orange back and a dark grey or black belly. It is positioned in the center-left of the frame, facing right. The background is dark and textured, with some thin, light-colored twigs and small green plants scattered around. The lighting is somewhat dim, highlighting the frog's form against the dark background.

Dark-sided Chorus Frog  
(*Microhyla heymonsi*)

# Mammals



A photograph of a dead frog lying on a dark asphalt surface. The frog is yellowish-green with dark spots. Its body is partially disintegrated, with blood and pieces of its body scattered on the ground around it. The text "There will be local extinctions of the following animals:" is overlaid on the bottom left of the image in a white, handwritten-style font.

There will be local extinctions of the following animals:

# Fireflies & Dragonflies

Fireflies (below) require clean water, shade, leaf litter and snails to feed on.

Dragonflies require clean stagnant water to breed.

Construction activities will destroy the habitat of these species.



# Forest-dwelling butterflies

Butterflies adapted to living in shaded areas will lose vital habitat.



# Spiders



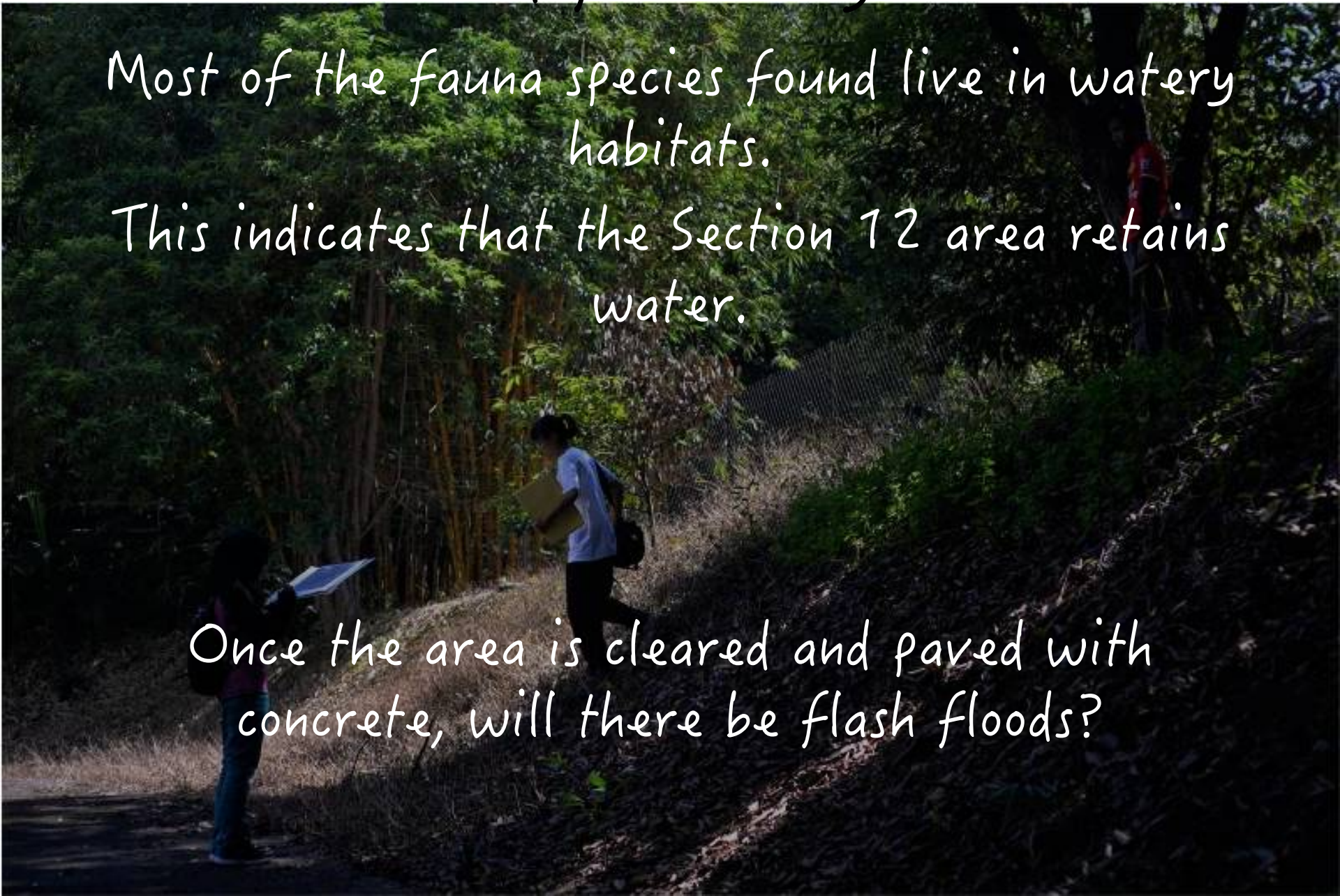
Shady trees and shrubs that make up orb web spider habitat will be destroyed.

# Food for thought

Most of the fauna species found live in watery habitats.

This indicates that the Section 12 area retains water.

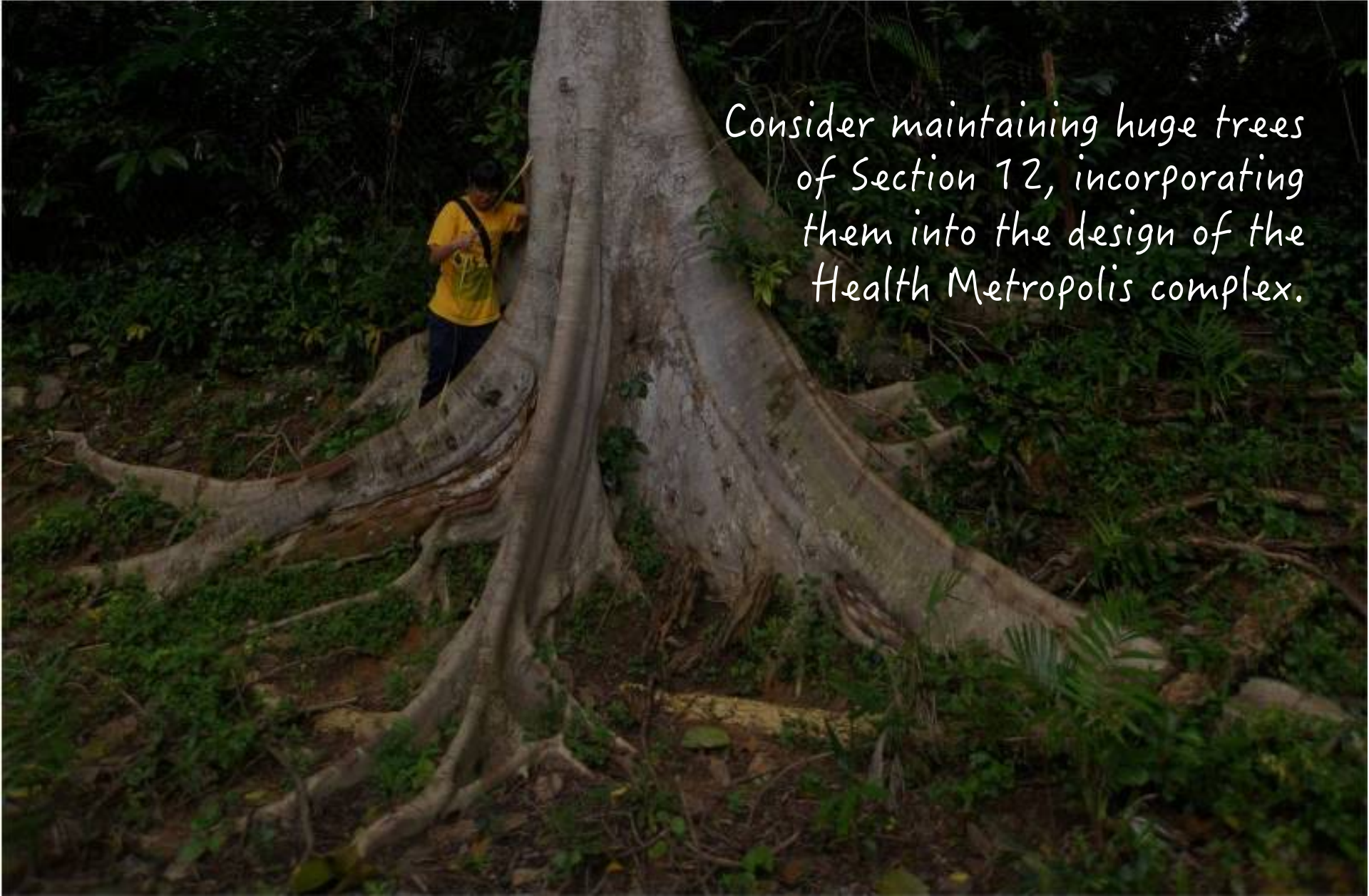
Once the area is cleared and paved with concrete, will there be flash floods?





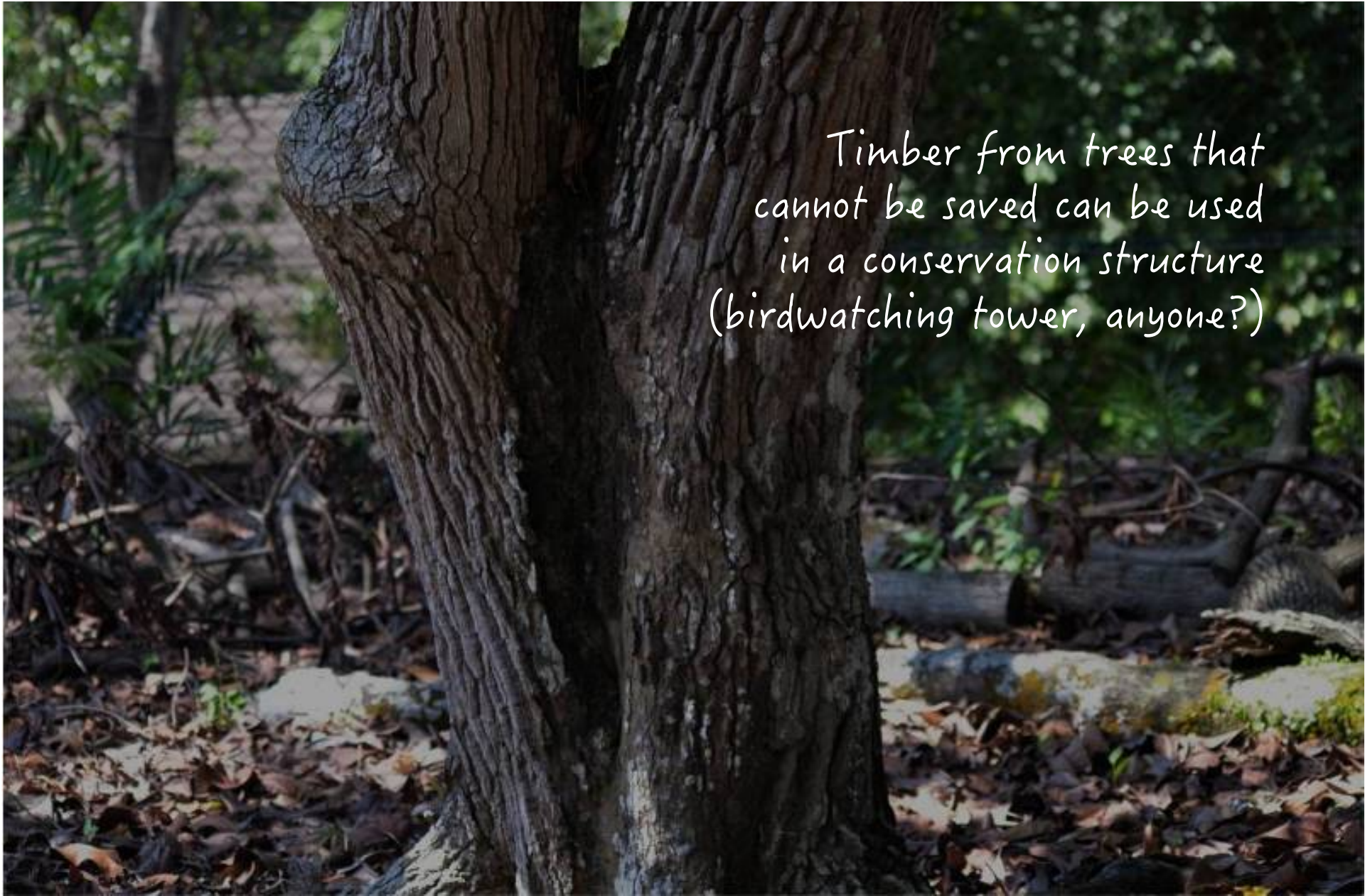
Recommendations

# Loss of large, majestic trees

A photograph of a person in a yellow shirt measuring the trunk of a large tree in a forest. The tree has a very thick trunk and large, spreading roots. The person is standing on a log or branch, using a measuring tape. The background is a dense forest with many green plants and trees.


Consider maintaining huge trees of Section 12, incorporating them into the design of the Health Metropolis complex.

# Loss of large, majestic trees



Timber from trees that cannot be saved can be used in a conservation structure (birdwatching tower, anyone?)

# Loss of tree biodiversity



Conserve the species and memory of Section 12 trees by harvesting and replanting the seedlings around campus.

Loss of roosting habitat for nocturnal animals

Build roost structures like bat boxes or owl houses.



# The Conservation Plan

# Conservation Zones

See next slide for guide to coloured zones



- |  |   |   |
|--|---|---|
| <b>1</b> “Epicentre” of flowing water (Nos. 4 and 6, Jln 12/5 and Nos. 3 and 5, Jln 12/7)              | <b>4</b> Large Fig with plank roots (No. 13, Jln 12/7)  | <b>7</b> Eagle spotted in tree branches (No. 7, Jln 12/7) — keep vicinity grassy for foraging |
| <b>2</b> Large Rain Tree (No. 7, Jln 12/5)   | <b>5</b> Plenty of Dark-sided Chorus Frogs (Nos. 11 and 13, Jln 12/7)   | <b>8</b> Large Ketapang (No. 5, Jln 12/7)   |
| <b>3</b> Row of large trees on slope between Institute of China Studies and CERiA — preserve for shade | <b>6</b> Fig tree, largest tree in Section 12 (5-metre diameter), between No. 18, Jln 12/5 and No. 17, Jln 12/7 | <b>9</b> UM Academic Club — a great restaurant and place to hang out!                         |

# Key Conservation Zones in Section 12

## BLUE

High water table. Retain greenery and stream between Nos. 4 and 6 (Jln 12/5) and Nos. 3 and 5 (Jln 12/7) for aquatic invertebrates' habitat.

## YELLOW

Birds of prey (eagles and owls) spotted. Maintain grassland for hunting and foraging, and some trees to perch – or possible future treehouse!

## ORANGE

Large trees on a slope. Maintain trees for shade, save on the high cost of levelling a slope.

## RED

Heritage trees zone. Some of the largest forest (e.g. Fig) trees are here. Levelling of houses possible but keep the trees, especially those in the narrow "back lane" corridor between Jln 12/5 and Jln 12/7.



# 5-Step Proposed Workflow

Main concept: a "park" in a parking lot

1. Harvesting of seedlings (see Slide 23 for locations) and if possible, timber (see Slide 22 for locations).
2. Build perimeter around conservation areas.
3. Consider maintaining 2-3 houses; if properly refurbished can be rented out as an event/activities venue.
4. Levelling can begin on Jln Universiti.
5. Maintain especially the side facing Jln 12/7 as a "green corridor." Once in place, we can start creating labels and other materials (e.g. signage) for conservation/educational purposes.

## Other Ideas

Maintain some of the natural flora (esp. medicinal plants) as "green pockets" within the Health Metropolis. This will add to its value as a place of healing — a hospital not just for "life support" but also to "support life"!

*Incorporate wild beauty in our plans*

The possibilities for a greener, cooler approach to development are plenty but political will must be there!

“Its hazards are hostile to us all. Its conquest deserves the best of all mankind, and its opportunity for peaceful cooperation may never come again.

But why, some say, the moon? **Why choose this as our goal? And they may well ask why climb the highest mountain?**

[...] We choose to go to the moon. We choose to go to the moon in this decade and do the other things, **not because they are easy, but because they are hard**, because that goal **will serve to organize and measure the best of our energies and skills**, because that challenge is one that we are **willing to accept**, one we are **unwilling to postpone**, and **one which we intend to win**, and the others, too.”

*John Fitzgerald Kennedy*