

ECO ENGINEERS
Ants in the wild are considered important ecosystem engineers and play an important role in every possible habitat on land worldwide, from mountains to mangroves.

“
DR WENDY WANG, an entomologist at the Lee Kong Chian Natural History Museum at the National University of Singapore.

Dr Wendy Wang, an entomologist at the Lee Kong Chian Natural History Museum, examining the veins across the bark of a tree behind the museum. These veins are vertical fissures covered with a powdery refuse, a tell-tale sign that *Rhopalomastix* ants have chewed through tunnels in the tree.
ST PHOTO: MARK CHEONG

409 ant species recorded in S'pore, the highest globally; island also has greatest ant diversity

Gena Soh

Singapore may be a tiny urbanised island-state, but it has a whopping 409 species of ants recorded – the highest number in any country in the world.

These 409 species include new local records of 121 species and 34 species endemic to Singapore.

This makes Singapore the city with the greatest ant diversity in the world for now – even as only less than 1 per cent of the Repub-

lic's original forests remain.

Dr Wendy Wang, an entomologist at the Lee Kong Chian Natural History Museum at the National University of Singapore, led the study, which was published in the scientific journal *Asian Myrmecology* on July 14.

The study not only enumerates the species of ants in Singapore, but also provides information on how to identify different ants and the kinds of habitats they may be found in.

Such detailed information was not available before, with the last scientific checklist of ant species in Singapore made in 1916 recording only 159 species of ants – less than half the actual number of species found in Singapore.

Professor Evan Economo from the Okinawa Institute of Science

and Technology, a co-author of the study, said: "It really is a monumental piece of work and will set the foundation of ant-related research in Singapore for the next 100 years."

With forests in other countries remaining understudied, Dr Wang emphasised that every bit of forest could be an enclave of rich biodiversity and many more ant species may be waiting to be found.

Although many people consider ants to be pests, Dr Wang said: "Ants in the wild are considered important ecosystem engineers and play an important role in every possible habitat on land worldwide, from mountains to mangroves."

The tiny insects help with soil mixing and seed dispersal and keep other pest populations in check.

Dr Wang said ants also exhibit

some interesting behaviours.

For instance, the elusive *Rhopalomastix* ants can chew through bark, and they also tend to armoured scale insects to feed on the latter's waxy bodily secretions.

As part of the bargain, the ants provide shelter and protection to these scale insects from predation.

This is just one of many bizarre ways ants obtain their food, said Dr Wang.

It is no wonder she is fascinated enough to make studying ants her career.

On some work days, Dr Wang may be found behind the museum staring intently at the bark of a tree. The subjects of her intense attention are narrow, russet veins that stretch across the tree's bark.

These veins are vertical fissures covered with a powdery refuse, Dr

Wang said, and are a tell-tale sign that *Rhopalomastix* ants have chewed through tunnels in the tree.

Dr Wang said: "These ants are otherwise hidden from the naked eye... (just because) we can't see them doesn't mean they are not there."

She added: "Some studies have shown that a single tree that is 30m to 40m high can be home to around 20 to 30 species of ants and other insect herbivores."

Stressing that ants should not be seen as "the annoying critters that invade homes and steal food", Dr Wang said: "Ants are way more diverse and complex... The discovery of so many different kinds of ants in our tiny city-state will hopefully dispel such negative perceptions of ants among members of the public."

genasoh@sph.com.sg

Sinister 'lovers' and blind nomads: The secret life of ants in Singapore

Besides the stereotypes of ants being hardworking clones, slaves to the queen and pests that terrorise homes, most people know very little about the critters.

Dr Wendy Wang, an entomologist at the Lee Kong Chian Natural History Museum at the National University of Singapore, lets *The Straits Times* in on the unusual lifestyles of four ant species found in Singapore.

This, she hopes, will change people's mindset about these critters.



GESOMYRMEX: THE INDIVIDUALIST

Labelling ants as individualistic may seem contradictory, but these *Gesomyrmex* ants break convention. Known for their extreme "caste polymorphism", each *Gesomyrmex* ant in a colony

can look very different from one another – no matter whether it is a worker or a queen.

These ants live high above ground in tree canopies, and the species was first recorded in Singapore when a large tree in the Nassim area collapsed in 1969.

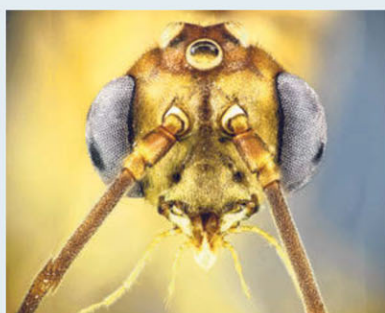


METAPONE MURPHYI: THE TERMITE LOVER

As termitophilous ants, these critters have been found living only with or right next to termites in dead wood.

The term "termitophilous" indicates that they are termite "lovers", but this "love" is of a sinister kind.

The ants have been found attacking or even eating their termite neighbours.



ODONTOMACHUS LITORALIS: THE MANGROVE ANT

These ants are not found near people's homes but live in the soggy mud of mangroves instead.

They have big menacing jaws and live in abandoned mounds

built by mangrove lobsters. During high tide, the mounds are submerged in water, and the ants emerge only during low tide for food.

It remains a mystery how the ants keep their nests dry.



AENICTUS: THE NOMAD

"Now you see me, now you don't" may be a catchphrase of magicians, but these *Aenictus* ants are nomads that live similarly on the go.

These ants have no fixed nest and alternate between nomadic and settled phases.

Every single ant – including the queen – is constantly on the

move during the nomadic phase.

When the ants need to rest during their travels, they form temporary "bivouacs" – heaving mounds composed of the bodies of living ant workers – to protect themselves rather than building a nest.

All *Aenictus* worker ants are blind.
Gena Soh

PHOTOS: AIKI YAMADA/TOKYO METROPOLITAN UNIVERSITY, LEE KONG CHIAN NATURAL HISTORY MUSEUM/NATIONAL UNIVERSITY OF SINGAPORE