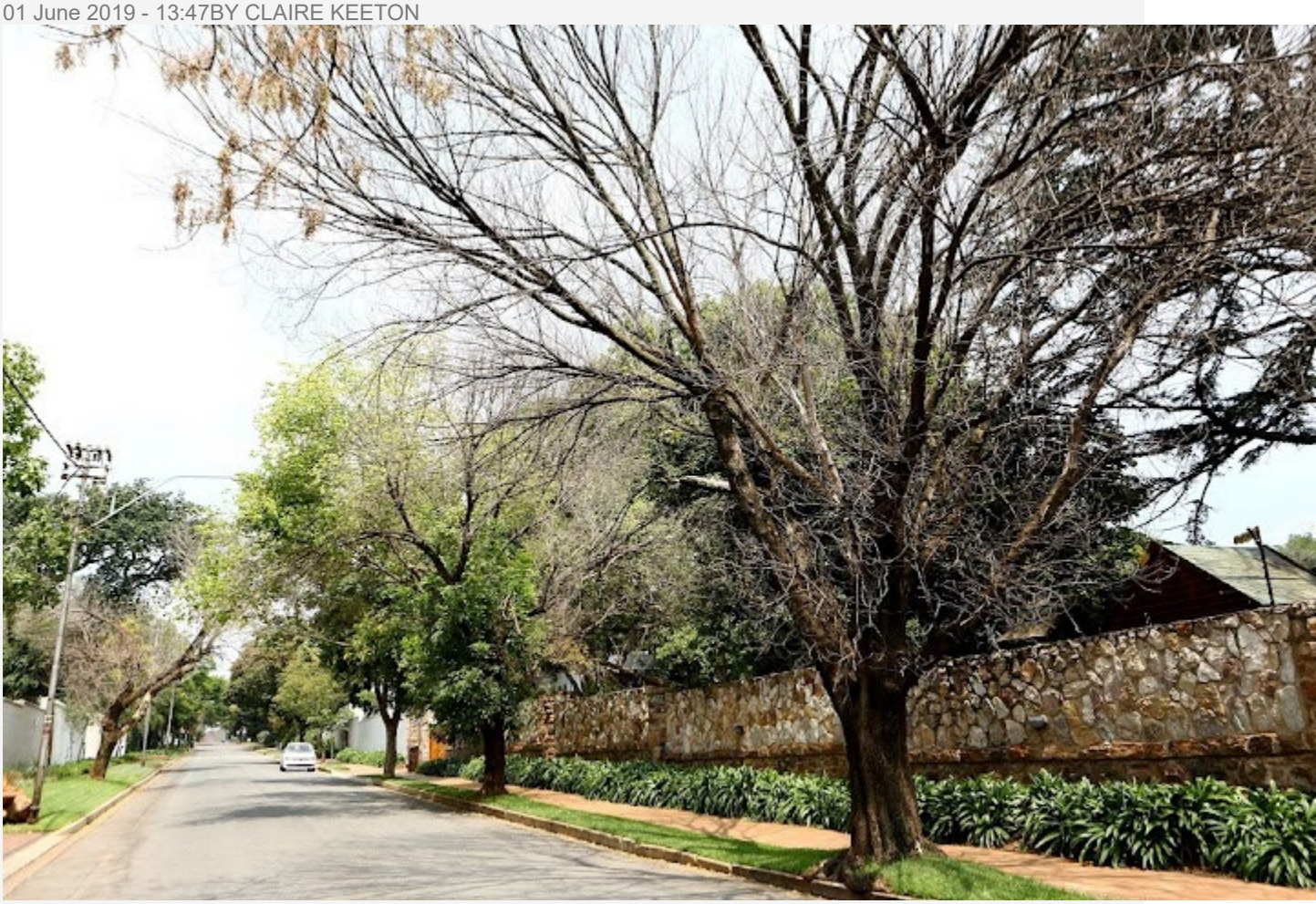
10 things to know about the bug that's relentlessly killing SA's trees en masse

Microbiologist and beetle expert Professor Wilhelm de Beer provides a beginner's guide to the polyphagous shot hole borer

01 June 2019 - 13:47BY CLAIRE KEETON



An elder tree killed by the polyphagous shot hole borer beetle - one of five dead trees in a street in Johannesburg.
Image: *Masi Losi/Sunday Times*

If you've spotted ominous red stickers or red tape on several of the trees lining the streets of your leafy neighbourhood and wondered what's going on, we have some sad news for you.

These are warning signs to the public of an infestation of polyphagous shot hole borer (PSHB), a beetle that's decimating trees across the country. Hailing from Southeast Asia, this pest was officially discovered in SA in 2017, in the Pietermaritzburg Botanical Gardens. Sinc then it has since spread to every province except Limpopo.

Sixteen academics from eight universities met late May in Pretoria to focus on the crisis. This includes microbiologist and beetle expert Professor Wilhelm de Beer from the University of Pretoria.

De Beer explains 10 things you need to know about the beetle's catastrophic impact on our country's historic, exotic and indigenous trees:

1. The beetle is tiny and destructive

PSHB is an ambrosia beetle, about 2mm long, which makes tunnels in the wood of trees. The female beetles infest trees with a fungus — they feed on this fungus, not the wood — and it's this fungus that kills the trees in the end.

A polyphagous shot hole borer beetle on a man's hand.
Image: *George Municipality*

2. They can infest many types of trees

What makes this beetle unique is that it can infest so many different species of trees. Most other beetles are quite specific – for example, they go for pine trees or avocado trees, not everything. This beetle is absolutely relentless: it will try any tree, although in many trees it is unsuccessful.

3. About 80 species of trees are infected so far

This includes both exotic and local varieties; about 35 of the 80 are indigenous. Scientists are monitoring the beetle's spread into native forests.

Stained bark is a symptom of shot hole borer infestation.
Image: *City of Cape Town*

4. Signs of infestation differ between species

Almost every species of tree has different signs of infection. Some trees have a white powder, some a brown sap and others just a drop on the trunk.

For a list of the various symptoms, visit fabinet.up.ac.za.

5. Thousands of trees around the country are going to die

Now that the beetle is in Somerset West, it is my prediction that there will be very, very few oaks left in the Cape Peninsula based on what we have seen in George, Knysna and Johannesburg. Streets of trees are already dying.

6. Some species seem to be unaffected by the beetle

In Johannesburg, for example, we know that the Jacarandas and white stinkwoods are quite common and those are not infected, though sometimes they have a few holes.

We are still doing more research to be certain which species are not affected.

7. There's no way to protect trees against the beetle

Scientists are doing experiments to find out how to prevent PSHB infection and how to get rid of it, but there are no positive scientific results unfortunately.

(That said, Johannesburg City Parks maintains that homeowners should keep their trees well fertilised and watered, as "a healthy tree is more like to withstand the effects of the PSHB".)

8. No treatment has been proven to work yet

As a country, SA will not get rid of this beetle.

If you have it in your garden and you have a really valuable tree and only a few infestations, you can use experimental chemical treatments, but nothing is registered legally that works. A number of companies are experimenting with injections into the stem, combining insecticides and fungicide.

A hole made by a shot hole borer in a tree in Somerset West.
Image: *City of Cape Town*

(However, Joburg City Parks cautions that using such chemicals comes with risks. It could lead to the contamination of ground water and the loss of animal habitats.)

7. Host trees must be destroyed by professionals as soon as possible

A reproductive host tree is a tree in which a beetle is successfully established and starts breeding.

There are 20 different species that have been identified as reproductive hosts; English oaks, London planes and Chinese and Japanese maples become heavily infested.

(The wood from infested trees that have been cut down must be dealt with carefully in order not to inadvertently spread the beetles to other trees, or other areas. To find out how to properly dispose of it, visit fabinet.up.ac.za.)

10. You need to report a beetle infestation

The government has provided R5-million in funding for research projects for biological control and in native forests.

Johannesburg City Parks is also supporting a scientifically based assessment of the problem.

Report any cases in your garden and your street as soon as possible by calling 011-375-5555 or sending an e-mail to diagnostic.clinic@fabi.up.ac.za.