

Call on Joburg's residents to plant trees to save the city's urban forest



File image.

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Johannesburg - Johannesburg's urban forest is in big trouble from a tiny but deadly beetle, which is why the authorities are encouraging residents to plant more trees.

The City's urban forest is one of the largest in the world, but the estimated 10 million trees that make up its canopy could soon be greaStory continues below Advertisement

The biggest challenge is the invasive polyphagous shot hole borer (PSHB), a tiny beetle that is not only threatening trees in Johannesburg, but has spread to eight of South Africa's nine provinces. Scientists are calling it the largest current outbreak of an invasive pest globally.

A recent study, spearheaded by the University of Stellenbosch, found that the 2mm-long beetles could cost South Africa \$18.45 billion (R294bn) over the next ten years. Municipalities, they say, will bear most of this cost.

Adelaide Chokoe, an arboriculturist at City Parks, said the fight against the beetle had slowed because of the Covid pandemic, but they were now making steady progress.



The polyphagous shot hole borer. The tiny beetle is about the size of a sesame seed. Picture: Greenlife Industry Australia – GIA/Facebook

“The removal of trees is very expensive, so we can't remove all the dead trees in the city. But we will remove what we can with the amount of money that we have,” Chokoe explains.

The City, she added, is examining ways of disposing of trees that have become infected with the pest. They are looking at sites where residents can dispose of infected trees, and moving closer to buying an incinerator.

City Parks spokesperson Jenny Moodley said: “So we've taken a decision – in the absence of having the budget and the resources to remove these infested branches – that we will leave the tree as is. Because the beetle, by its nature, is going to fly off to another tree and another tree. So we leave it where it is, instead of letting it spread.”

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What City Parks are facing is a bug with a complicated life cycle that acts as a taxi for the real tree killer, a fungus known to scientists as *Fusarium euwallaceae*.

Marcus Byrne, a professor of entomology at Wits University, explains: “So the female carries the fungus in special pockets on her body. Then she drills a hole in the tree and inoculates the fungus into the galleries she makes in the tree. Her babies and herself will feed on that fungus. It's a beautiful symbiosis, but, unfortunately, she's in the wrong tree.”

In an article in the SA Journal of Science, the authors identify 130 plant species in South Africa that the beetle and fungus have infested.

But one of the problems that the City of Johannesburg has is that they don't know the full extent of the problem. This is something that Byrne and his colleagues at Wits are trying to work out. They have been using drones and satellite imagery to try and pick out trees that are infected.

"The evidence on the trunks, particularly on plane trees, is very obvious, so what we are trying to do is see if we can detect the same damage in the canopy of the tree from the sky," said Byrne.

Chokoe said that while there is research under way to find a biological control agent for the fungus and beetle, she believes that we are going to have to learn to live with it.

"It is now a matter of managing it," she says.

And it is not just PSHB threatening Joburg's trees; there are other diseases, and climate change. Oak trees, says Chokoe, are particularly vulnerable and the older specimens can't take the warmer weather.

And this is why the City wants residents to help out. It is finding it difficult to keep up with replacing trees. In the past financial year, they planted 10 000 trees in Johannesburg. Trees are being planted on the outskirts of the city, where there is less of a PSHB infestation.

According to Moodley: "We really want residents with space to plant trees in their private yards. It is going to be beneficial on so many levels, from helping contain pollution levels, to attracting bird life and aesthetics."

Urban forests play an important environmental role in cities, moderating local climate, slowing wind and stormwater, and filtering air and sunlight.

Chokoe suggests that residents consider planting a ratio of 70% to 30% indigenous to exotic trees – and preferably not species that are hosts of the beetle.

Ratepayers' associations have also been helping. The Houghton Ratepayers' Association has been replacing dead trees in their area.

But while cities such as Johannesburg are doing their bit in the fight against the PSHB, some believe that to defeat the beetle will require a more holistic approach.

"We need a national policy and co-ordinated strategy for municipalities to stop this beetle in its tracks," said Prof Martin de Wit, an economist at Stellenbosch University's School for Public Leadership, in a statement.