RESEARCH - FLORA

MANAGING TAR SPOT DISEASE OF MYRTLE HAKEA

Elaine Davison

The disease problem

Myrtle hakea (*Hakea myrtoides*) is a small spreading shrub with broad leaves and attractive pink, crimson or purple flowers. It is one of the hakeas that resprouts after fire. It grows in small, discrete populations on the Swan Coastal Plain, Darling Scarp, north to Mogumber and east to York.

Hakea myrtoides *has brilliant magenta flowers. Photo: P. Hussey*

Myrtle hakea leaves are often badly affected by tar spot disease. These spots are black, shiny domed spots, about 1mm in diameter, which are often surrounded by a yellow halo. The spots are immersed in the leaf and penetrate through it. This disease is caused by the fungus *Phyllachora grevilleae*, a parasite that can only grow on a living host. Badly affected plants carry a large number of dead leaves and lack vigour.

Tar spot disease on myrtle hakea, Mundy Regional Park. Photo: Elaine Davison [Black and white does not do this pic justice - the leaves are dotted with black spots - Ed.]

A population of myrtle hakea occurs in the Ellis Brook Valley reserve, Gosnells. It has been badly affected by tar spot disease for many years, and the Friends of Ellis Brook Valley want to control the disease in order to increase the vigour of the plants. Francis Tay and I at Curtin University of Technology have been trying to find a way to do this.

The effect of burning on tar spot disease

Tar spot disease is spread by spores that are produced in the spots during autumn, winter and spring. Leaves will become infected whenever there is sufficient rain for these spores to be dispersed and the leaves are wet enough for infection to occur. Burning is one way to destroy infected leaves and any residual spores, so that newly developing shoots should be disease free.

In order to find out whether burning does reduce tar spot infection, the plants at Ellis Brook Valley reserve were burnt by the Gosnells Volunteer Bush Fire Brigade in November 2007. The level of tar spot disease on regenerating shoots was measured in 2008 and 2009, and was compared with the amount of disease before the burn, and also with the amount of disease on unburnt plants in Mundy Regional Park and Whistlepipe Gully, about 10 km away. Plants burnt in a wildfire at Whistlepipe Gully were also included in the surveys.

Although burning did not completely eliminate the disease, it reduced the proportion of infected leaves. After 20 months fewer than 8 % of the leaves on burnt plants were affected by tar spot, compared with 29 % of leaves on unburnt plants.

Recommendations from this work are that burning can significantly reduce the incidence, and therefore impact of tar spot disease on myrtle hakea. To be effective the fire needs to be conducted in summer and should be sufficiently extensive to burn, not just scorch the whole population. Kangaroo browsing of the regenerating shoots was a problem at Ellis Brook Valley so regenerating plants must be protected by rabbit guards.

Will this control be effective for other resprouting hakeas?

The success of burning to minimise tar spot disease depends on a number of assumptions:

- The tar spot fungus only infects living plants.
- All of the infected leaves and residual spores are destroyed by the fire.

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Members' page

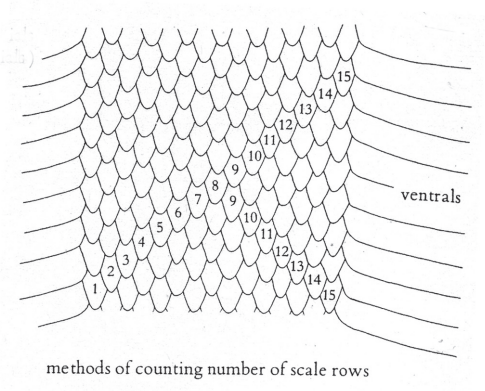
SNAKES IN THE ROOF!

Jane and Marcus Dyke love living next door to their 72 hectares of bushland at Narrogin and occasionally see a snake, but when they recently replaced the roof on their house, they were shocked to find 35 shed snake skins! .

The house was originally roofed in tin, but as the tin began to sag, the previous owners pitched another tile roof directly over the top leaving the 'sags' as nice warm spaces. It was in these spaces that the roofing carpenters collected the sloughs (shed skins) in this photograph. The carpenters were not impressed, saying that if they came across a live snake, the Dykes would have to finish the roof themselves!

The Dykes were curious as to which snake had shed its skin, how many snakes were living in the roof and if they should be concerned for the safety of their young family.

Snakes can be easily classified into non venomous carpet pythons, or the common venomous species such as gwardar, dugite or tiger snakes by counting the scales at mid body. Carpet pythons have 40 to 65 scales in a row whereas the common venomous snakes in the region have around 17 to 19 scales.



methods of counting number of scale rows

Using this method these skins were identified as the non-venomous carpet python. Was it one snake or many? Hard to tell as a carpet python can live for 25 to 30 years and can shed its skin a couple of times a year if conditions are favourable.

This is an amazing collection of skins and shows that snakes have an unnecessarily bad reputation. The snake/s had probably been controlling rodents within the ceiling for years while the owners were blissfully unaware of it/their presence.

Avril Baxter

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Tar spot

- The tar spot fungus is host specific, i.e. there is a different species of tar spot fungus on each species of hakea.
- The tar spot fungus spores are splash dispersed by rain, and only have limited ability to spread from a diseased to a healthy population.

We were not able to test these assumptions, which would have taken much more time and money than was available to us. Careful observation, however, may indicate whether burning is effective at reducing tar spot disease. If you have badly affected hakeas on your property and these are burnt in a hazard reduction burn, just check the amount of tar spot on regenerating shoots in subsequent years. Taking close up photos would be a good way to document what was there before the burn, and follow the health of the new shoots.

Acknowledgements

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