

Africa's fairy circle mystery is solved

Jane Flanagan, Cape Town

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Africa

South Africa



Fairy circles appear in a line of sandy soil that stretches through Namibia
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The fairy circles of southern Africa — discs of bare ground in the red deserts — have confounded scientists and enchanted visitors for decades.

Now researchers have solved the [natural mystery](#). They are the legacy of the milk bush, a toxic succulent whose sap was smeared on the arrow tips of the first hunters on the plains of Africa.

“There have been many theories over the years,” Marion Meyer, professor of plant chemistry at the University of Pretoria, told *The Times*. “We are convinced we have finally proved what causes this feature.”

Meyer said members of the university’s botany, geography and soil chemistry departments had all worked on the research.

Fairy circles appear in a strip of arid land 20 miles wide that stretches from Angola, through Namibia down to South Africa, about 50 miles in from the Atlantic coast. There are hundreds of thousands of the near perfect circles, about 15ft in diameter, often ringed by tufts of grass.

From a plane, the landscape below appears speckled like the spots of a leopard. For years termites were blamed in the belief that they were cleaning the area around their nests. Then subterranean fungi were suggested. Each theory lacked scientific evidence, however.

The university team has analysed soil samples to link the circles with the [euphorbia plant](#), known locally as milk bush for the white, gummy, toxic sap that oozes from its branches and can cause temporary blindness.

Tests showed that when a euphorbia dies it kills off other plants and coats the sandy soil with a sap that repels water. Any rain that falls is forced to sink deeper, below the sand stratum, preventing new growth.

A vertical chimney of sand becomes a dead zone capped by a circle of exposed ground.

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Aerial survey images taken in the 1960s show that the bare patches remain for decades until the water-repelling sap breaks down.

The scientists confirmed their theory by hunting down areas of euphorbia in the Kalahari Desert and finding previously unrecorded bursts of fairy circles.

The succulents alone, however, are not enough to produce the phenomenon. Other elements are needed for the spectacle to occur, including a sandy soil that can become water-repellent easily and only very limited levels of rainfall.

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