

The shepherd's tree is one of the few trees to thrive in the Kgalagadi Transfrontier Park.



SHADY DEALINGS

In the Kalahari, the going is getting even hotter. Small birds are changing their behaviour, searching for the nearest shepherd's tree during the midday heat. **By Susan Cunningham**

Weather station records show the Kalahari has been warming up faster over the past few decades than most other places in South Africa. In the Kgalagadi Transfrontier Park, animals have strategies to deal with the heat. Flat lions stretched out in the shade of camelthorn trees at midday are a great example. They cope by reducing exposure to hot temperature extremes.

By using cool places such as the shade in trees and under rocks, animals *might* survive the rising temperatures brought on by climate change. This strategy could be vital for birds, because they are active during the day and their small body size makes them vulnerable to changes in temperature. While most research to date has focused on physiological limits to heat tolerance, fellow researcher Rowan Martin and I were interested

in possible behavioural changes.

In the dune fields of the Kalahari, we studied a community of about 57 bird species, including familiar birds such as black-chested prinias *Prinia flavicans* and Kalahari scrub-robin *Cercotrichas paena*. We observed how they used the shade provided by different types of trees across a range of temperatures, from cool (below 20°C) to extremely hot (around 40°C).

Only a few types of tree grow in the harsh Kalahari, including silver clusterleafs *Terminalia sericiflora*, shepherd's trees *Boscia albitrunca*, grey camelthorns *Acacia haematoxylon* and camelthorns *Acacia erioloba*, which are famous for providing food and shelter to many different animals. We used a light meter to measure shade inside tree canopies and found that shepherd's trees cast significantly denser shade than any other savanna



In the Kgalagadi Transfrontier Park, shepherd's trees can mostly be seen from the dune roads. Look for the thick canopy and white bark.

tree, thus confirming what Kalahari shepherds already knew!

On cool mornings in the Kalahari, the birds used all trees equally. As temperatures increased, shepherd's trees became more and more important. When the mercury rose above 35°C, this became their favourite spot. On hot afternoons, birds actually avoided other tree types.

Our research focused on four species: chestnut-vented tit-babblers *Parisoma subcaerulea*, black-cheasted prinias, scaly-feathered finches *Sporopipes squamifrons* and Kalahari scrub-robins. Scrub-robins and scaly-feathered finches find most of their food on the ground, but prinias and tit-babblers glean their food, mostly small insects and spiders, from the branches of trees. The tree foragers preferred to use shepherd's trees *all* of

the time, regardless of temperature. Shepherd's trees probably provide better food resources than other types of trees for these birds.

For the ground foragers, though, shepherd's trees weren't particularly important at cool temperatures and, in fact, scaly-feathered finches even avoided them. However, they became more and more important as temperatures rose. On hot afternoons, even the scaly-feathered finches preferred to be in a shepherd's tree rather than anywhere else in the landscape.

Many bird species already rely on shepherd's trees to get through hot summer afternoons. Under climate change, we are likely to see shepherd's trees playing an ever more pivotal role in providing shelter to the small birds of the Kalahari. ♀

This study was carried out by Percy FitzPatrick Institute researchers Rowan Martin and Susie Cunningham. A scientific paper will be published in the next issue of *The Ostrich*, a journal on African ornithology.

WIN

To stand a chance to win a certified print of the shepherd's tree, simply answer the following question: What is the Afrikaans name for the shepherd's tree? SMS Shepherd: answer and your valid Wild Card number to 33929. It costs R1.50 an SMS. Closing date: 31 August 2015. A winner will be selected by lucky draw.

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Pinacopteryx eriphia eriphia ♂

The shepherd's tree is host to 14 butterfly species, including the zebra white with its distinctive colouring, black with creamy white bars and spots. When the larvae emerge, they feed on the leaves.

From November to April, the tiny round berries, about 1 cm, provide birds with a feast. As the berries ripen, they turn from green to pale yellow, apricot and pink.



Evergreen leaf clusters, much beloved by herbivores for their protein content, spiral around branches and shoots. With the first spring rains, tiny greenish-yellow flowers burst into bloom, scenting the air with their strong fragrance and attracting masses of insects.



Nowadays the shepherd's tree is protected, but in the past humans roasted the nutritious roots to produce a coffee substitute. The Afrikaans name "witgat" refers to the white bark and the cavities in the trunk, which collect precious water.

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