

# New technology reveals call behaviour

**René de Klerk**

One often sees bats swooping around at night at high speeds. This happens when they locate insects using high-frequency sounds similar to sonar. Generally, different species are associated with different frequencies.

Until now, researchers have found it challenging to study bat behaviour. But new technology is making this task easier. Researchers from the University of Cape Town (UCT) teamed up with the University of Bristol to study the flight paths and calls of bats in relation to one another. The technology was tested in a number of areas, including /Ai/Ais- Richtersveld Transfrontier Park.

“The intensity of bat calls is hard to measure, because you have to know where a bat is in relation to the microphone,” says

Nikita Finger, PhD candidate in biological science at UCT. The new software determines how loud bats call in relation to the placement of microphones. Combined with 3D scans of their environment, they are also able to see how bats manoeuvre

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through vegetation.

Finger has studied both Cape horseshoe (*Rhinolophus capensis*) and Damara horseshoe bats (*Rhinolophus damarensis*). The Cape horseshoe bat occurs in fynbos too, so the results allowed for comparisons between areas. The results gave insight into their adaptive survival techniques in this arid region.

During their research, the team identified

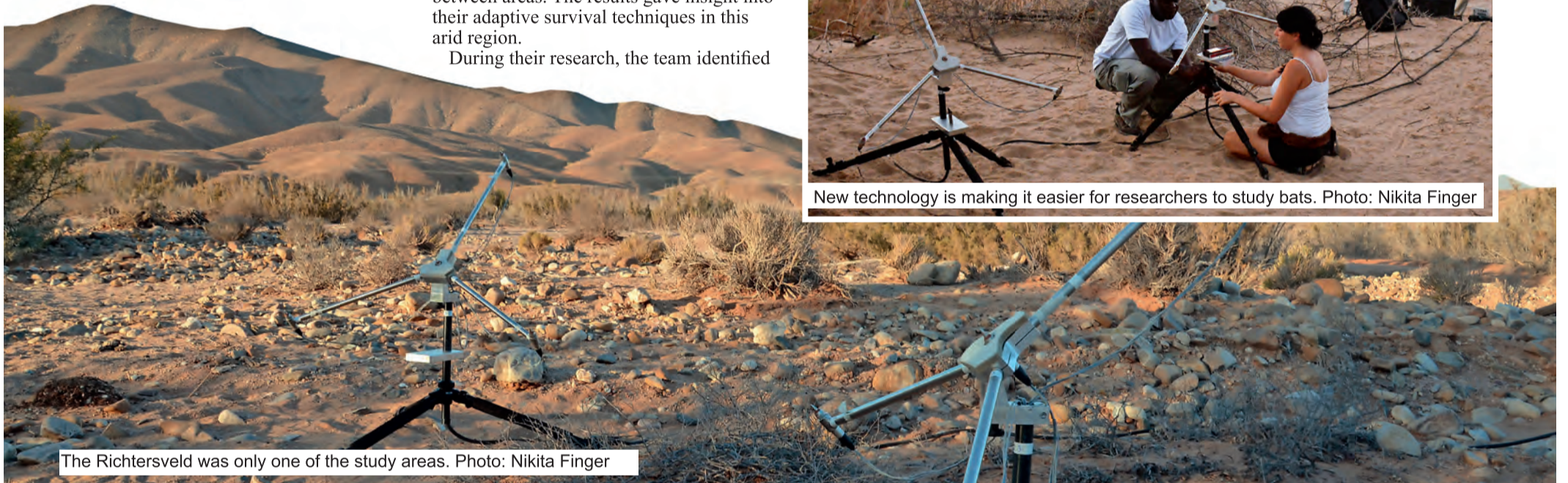
the species of a population of bats in a mineshaft near the entrance to the park, already known to the park’s nursery assistant, Pieter van Wyk, as the Damara horseshoe bats. “They were previously known to occur along the Orange River and as far south as Carnarvon, but the Richtersveld population is new to science,” says Finger.

Researchers also found that a population of previously known cape horseshoe bats used corridors or flight paths going down to the river so they could forage in high-vegetation areas. But – of even greater interest – these horseshoe bats use lower frequency and may be using higher intensity sounds than those found in fynbos. “If so,

they would be able to detect insect prey from further away.

“This research is important because bats rely heavily on the sounds they use to interact with their habitat and such research can be one way to understand how they evolved,” she explains. “One would not expect to find bats that are specialised at foraging in cluttered environments in an arid region.”

The research only started two years ago and plans are to use this technology to study bats throughout Africa. Sound volume levels can give greater insights into the way bats live and the adaptations they have undergone to survive in their varied habitats.



The Richtersveld was only one of the study areas. Photo: Nikita Finger



New technology is making it easier for researchers to study bats. Photo: Nikita Finger

## Nama community and Canada’s Blood Tribes work together in the face of climate change

Indigenous communities around the world risk suffering under the direct consequences of climate change. Because of the dependence of these communities on the environment and its resources, they are particularly vulnerable to the threats of global warming.

That is why SANParks, together with the Richtersveld World Heritage Site and the Kuboes community, are working to better understand the impact of climate change on local indigenous communities.

The project is being done in conjunction with the Rockies Institute and the Kanai Tribe of Alberta in Canada, in order to develop a knowledge exchange between the Nama Tribes of southern Africa, and Blood Tribes of Canada. The ultimate goal of the project is to help equip communities with the practical tools to develop climate-risk adaptation plans.

“This project creates a global north-south exchange with members from the Blood Tribe and Nama in South Africa,” says SANParks landscape ecologist Dr Mmoto Masubelele. “Despite geographic differences, indigenous communities share common



**Climate change threatens the livestock-dependent Nama people living in Richtersveld and surrounds. Photos: Taryn Arnott van Jaarsveld**

challenges to climate-change adaptation.”

This proposed pilot project will integrate field observations and community surveys with cultural and social inputs to help develop new ways to cope with the effects of climate change.

Close to 50 people joined in on

the initial meetings introducing the project in Kuboes.

The meetings revealed that the Nama community in the area had been affected by climate change in many ways. For one, the increase in temperature makes it difficult

for primary school learners to concentrate while in classes.

Sand blown by strong winds has also resulted in the loss in foraging material for livestock, and has also clogged springs and wells.

Sandstorms have also become more severe in recent years, with inhabitants of the area indicating that they have negatively affected

infrastructure.

“The broader understanding of the adaptation techniques adopted by indigenous communities can be useful for other rural communities,” says Masubelele.

The project kicks off with surveys of the two communities. Thereafter, training material will be drawn up to help the community deal with climate issues. An ultimate goal is also to promote indigenous knowledge systems and exchanges between the two communities.

In the Kuboes community, plans are already under way to mitigate negative impacts. Water points are being mapped, which will form part of a broader plan to implement climate-change adaptation strategies.

The project will exemplify the importance of knowledge sharing between indigenous communities which will contribute to commitments under the Paris Agreement, and build a unique and best practice model or method for the new UNFCCC Indigenous Peoples’ Platform. Masubelele and collaborators will host sessions in Edmonton, Canada during the intergovernmental Panel on Climate Change Cities Conference in March.