



Contemplating the fate of African honey bee populations

The University of Pretoria (UP) is recognised as one of South Africa's leading research universities. It is the top ranking University in terms of the number of accredited publication units. The number of researchers with National Research Foundation (NRF) ratings is increasing annually, as is UP's visibility in ISI indicators. At the helm of the University's research function is Prof Robin Crewe, Vice-Principal: Research and Postgraduate Studies.

Prof Crewe is more than just a member of the University's executive. He is also an active researcher in his own right, who holds a B1 rating from the NRF.

In addition to his management functions, he is also professor of Entomology and leader of the Social Insects Research Group in the University's Department of Zoology and Entomology. He is also President of the Academy of Science of South Africa.

Among the many honours he has received in his scientific career are the gold medal of the Zoological Society of South Africa, honorary member of the International Federation of Beekeepers' Associations (Apimondia), fellow of the Royal Entomological Society and Chevalier: L'Ordre Nationale du Mérite. He is also a fellow of the Academy of Science of the Developing World (TWAS) and of the Royal Society of South Africa.

He obtained his PhD in Entomology from the University of Georgia, where he developed an interest in chemical communication and social organisation in insects.

During a recent expert lecture held at the University of Pretoria, Prof Crewe presented what he calls "doomsday scenarios" related to the fate of African honey bee populations.

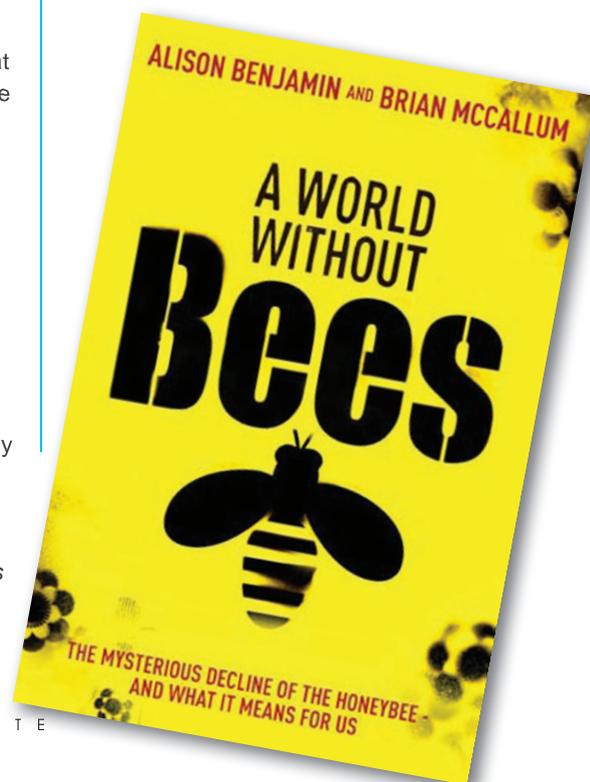
Doomsday scenarios

Recent media attention has been focused on the perceived worldwide plight of honey bee populations with predictions about the drastic ecological effects of the loss of honey bees as pollinators. Alison Benjamin and Brian McCallum published a review of this position in their book, *A world without bees: the mysterious decline of the honeybee – and what it means for us*.



→ Prof Robin Crewe

The scientific journal *Apidologie* has published a special issue on bee health to address "the large-scale loss of honey bee colonies (which) has come into focus under a worldwide spotlight. Colony collapse disorder, winter losses and weak bee colonies are pervasive in many apiaries leading to a serious situation for beekeepers and pollination."





→ *African honey bees could supply the raw material to recolonise the world.*

These doomsday scenarios arise from research in the USA, Europe and Latin America, and suggest that we should be concerned by this apparently global pandemic affecting honey bee populations.

However, very little is said about honey bee populations in Africa, and nothing is said about the “plight” of African populations of honey bees. Furthermore, there is very little recognition of the significance of Africa honey bee populations for this story.

As with human populations, the origin of all honey bee populations is the African continent and an exploration of the impact of African, and particularly southern African, honey bees on global honey bee populations needs to be understood in order to provide solutions to the regional crises in the USA, Europe

and Latin America occasioned by honey bee colony losses over the last three or four years.

His lecture explored the evolution of honey bees in Africa, their expansion to Europe and the Middle, followed by their anthropogenic transmission to other continents where they became classic invasion species.

He went on to explore the role of southern African populations of honey bees in this unfolding drama in depth, both to describe one of the most extraordinary invasions of a continent by an organism and to understand the interaction between honey bee populations from the extremes of the species distribution.

The discovery of social parasitism in honey bee colonies has led to a much better understanding

of plasticity of honey bee social organisation.

Among the findings of his research is the fact that Africa has the largest number of wild honey bee swarms in the world. A substantial proportion of honey bee genetic diversity is therefore located in Africa. Populations in Africa are not as severely affected by diseases and the impact of industrialised apiculture.

Prof Crewe concludes that the insights gained from African honey bees can be used to indicate that the threats to honey bee populations in the northern hemisphere and Latin America may be resolved by recolonisation of these areas using populations of African honey bees. 🌐