



The Authors

Gudrun and Nikolaus Koeniger have been fascinated by honey bees since childhood. Their work on tropical honey bees began during their PhD studies at the Goethe University of Frankfurt. Then Nikolaus became professor at the University of Guelph (Canada). Later he returned to Germany and was appointed as head of the Bee Research Institute of the Polytechnic Society at Frankfurt University. Gudrun worked as a research scientist and German editor of the international scientific journal *Apidologie*. Their research in Pakistan, Sri Lanka, Thailand and several other Southeast Asian countries was focused on Asian honey bees. In 1986 Gudrun and Nikolaus started long-term research collaboration with Salim Tingek and finally they began, together with their close friend Salim, to write a book on their experiences with honey bees of Borneo.

Salim Tingek has been employed by the Department of Agriculture Sabah since 1979; in 1987 he was appointed Research Officer in charge of the Apiculture Section of the Agriculture Research Station, Tenom which attracted leading foreign honey bee researchers. Salim Tingek has published more than thirty research papers in collaboration with some distinguished international researchers. Among his scientific achievements are the rediscovery of *Apis koschevnikovi* in Sabah and the discovery of *Apis nuluensis* species with Gudrun and Nikolaus Koeniger. Salim Tingek has greatly assisted in the development of beekeeping and honey production in Sabah.



Honeybees of Borneo
Exploring the Centre of Apis Diversity



Nikolaus Koeniger, Gudrun Koeniger
and Salim Tingek



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This book is a reliable and fascinating guide to one of Borneo's natural wonders—the diversity of honey bees, their intriguing societies and their adaptations to the complex tropical environment. The admirable harmony of their social life, the precision of their combs and the richness of their honey stores are described, as well as the honey bee's defence strategies against strong bears, fast flying birds and minute mites.

An array of unique, spectacular photographs allows the reader to visit the giant honey bees (*Apis dorsata*) in the canopy of the highest *Koompassia* trees and witness painful bee stings penetrating deeper and deeper into the skin. Unique in the animal kingdom are magnificent assemblies of thousands of drones which, far from the safety of their nests, circle high in the air waiting for the arrival of a single virgin queen. The outstanding taste and quality of honey of indigenous Asian bees is acknowledged and its unjustified degrading by honey standards of the western *Apis mellifera* is exposed. Sustainable keeping of indigenous bees for honey production in Asia must gain more momentum! The knowledge and awareness disseminated by this book will undoubtedly help to protect native honey bees and their habitats in Borneo and elsewhere!

Cover: Drones fly out for mating only at specific times during the day. Drones of *Apis andreniformis* appear at noon on the top of the comb from where they start their mating flights. One drone on top (centre) is ready to start. *Photo: Nikolaus Koeniger.*

Spine: The endemic *Apis nuluensis* from the highlands of Borneo was only recently described. *Photo: C.L. Chan.*

Back cover: The trunk of a bee tree with a new ladder and "scars" of former bamboo pegs. *Photo: Nikolaus Koeniger.*