Stingless Bees of Mexico

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The Biology, Management and Conservation of an Ancient Heritage

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Preface

Stingless beekeeping (meliponiculture) in the Yucatan is an ancient activity. Nowhere else in the world meliponiculture reached the level of technical skills and productivity attained by the Maya in Mesoamerica with the stingless bee *Melipona beecheii*. However, changes in the economic system, together with severe deterioration of the habitat, caused a steady decline of this activity, almost to the verge of extinction. Fortunately, a series of events coincided in the mid-1980s that helped raising concern and renewed interest with important initiatives to rescue meliponiculture in the Maya region. In my opinion, 1986 was a critical year due to the arrival of the Africanized bee. The Africanization of European apiaries, drastically changed beekeeping in the whole of Mexico, but especially in the Yucatan Peninsula. In this area, with one of the largest densities of managed honey bee colonies in the Americas (17–21/km^2), hives were traditionally kept in the backyard of rural homes. To avoid stinging accidents, apiaries had to be relocated in the forests, further away from human settlements, leaving a vacant niche in rural homes. At around the same time Jorge González Acereto, a tireless promoter of stingless bees and meliponiculture in Mexico, started the characterization of nests of species from the Yucatán Península, with the objective of designing modern hives to keep them. Other students and I were involved in that project. Then, like most people, I was totally unaware of the existence of these insects and their ancient cultivation. We travelled the Yucatan, searching for colonies and species and got to know several stingless beekeepers from whom I learnt the importance and cultural value of this Mayan heritage. We visited remote rural villages in the forests of the Yucatan where stingless beekeeping had survived thanks to isolation from modern cultural influences. New species, like *M. yucatanica*, were discovered during our travel. With advice of various recognized researchers, as Professor Paulo Nogueira and Virgilio de Portugal Araujo, wooden hives of suitable size were produced for our different stingless bee species. This started the modernization of stingless beekeeping in the Yucatan, allowing better management and improvement on the production and quality of bee products. I obtained my bachelor's degree with a thesis investigating the development of colonies of *M. beecheii* in various types of hive and concluded that, colonies did not adapt to hives with excess volume because of thermoregulation problems. The

development of modern husbandry, together with the promotion of stingless beekeeping as an alternative activity for rural villages, triggered a rebirth of the activity. With support from the government, several groups of farmers, especially women, got involved in meliponiculture, and started to take over the empty niche left by honey bees. Initiatives like the Seminario Mesoamericano sobre Abejas Nativas, devised by Margarita Medina and other stingless bee enthusiasts, helped to gather scientists and beekeepers around similar objectives.

Nowadays, stingless bees have become a phenomenon all over the Yucatan Península and other regions of Mexico. Indigenous groups and agencies are promoting *M. beecheii* and other species like never before. However, here lays a paradox: the recent popularity of stingless beekeeping is also becoming a major hazard. Uncontrolled selling of colonies because of high demand, and the negative impact of inexperienced instructors are threatening the activity, perhaps at a larger scale than ever. An avalanche of written and visual information on stingless bees can be found today in social networks, especially for Latin America. Unfortunately, much information found on these platforms lacks support and can be seriously mistaken, but accepted to the letter by inexperienced hobbyists, in detriment of colonies.

A great deal of scientific information has accumulated on stingless bees. However, it is generally dispersed and not easily available to the Spanish speaking public. One purpose of this book is to compile information on different aspects of the biology and management of stingless bees and (hopefully) make it accessible to students, academics, instructors, and the general public. The original work in Spanish, is aimed at readers in México, where information on these insects is limited. I dared to translate this work to English, intending that the information produced in Mexico (and Latin America), could be better known in other regions. I take full responsibility for the mistakes.

I would like to acknowledge many colleagues, with whom I have shared constructive scientific discussion, and pleasant times for several years. I particularly thank friends, who kindly reviewed and commented on earlier versions of the different chapters: Rodolfo Jaffé, Claus Rasmussen, Rob Paxton, and Adam Hart. My sincere thanks to all of you. My profound gratefulness to the agencies that have supported my research during all this time: the International Foundation for Science in Sweden, Fundación Produce Yucatán 2001–2007 (Manejo tecnificado de abejas sin aguijón y su uso en la polinización de cultivos), SISIERRA (Rescate de melponicultura en la Península de Yucatán), CONACyT Projects 2002–1556 (Rescate,conservación y mejoramiento genético de los recursos apícolas de México), 103341 (Conservación de las abejas sin aguijón de México), B237532 (Climate change and pollinators), and SAGARPA-CONACYT 291333 (Manejo sustentable de polinizadores).

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my sisters Elia and Rosa, my dear friend and companion Alvaro Pat, my aunt Catalina, and my niece and nephew Mariana and Bernardo. Thank you all for your support and understanding.

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