



## Editorial

### Special Issue on *Stingless bees: Integrating basic biology and conservation*

It is easy to see why stingless bees (Meliponini) were chosen for this special issue, entitled *Stingless bees: Integrating basic biology and conservation*. Interest in these bees is increasing each day, with their role as ecosystem services providers in the pollination of wild and cultivated plants, and their fascinating biology and social behavior. Yet, despite having been kept by the Native Americans for hundreds of years for their honey, they remain much understudied compared to their better known relatives, the bumblebees and honeybees. This is in part due to their massive biodiversity, with known species now numbering over 500 – all with a tropical distribution.

The diversity and rich social behavior of the stingless bees has often been compared to the knowledge of the other group of eusocial bees, including the bumblebees (Bombini) and honeybees (Apini). Yet, the development of new scientific techniques and research methods, and progress in deciphering their phylogeny, now allows for an updated interpretation of the evolution, biology and conservation of Meliponini bees.

In this issue, over thirty papers provide a sampling of how interesting stingless bees really are. The evolution of bee eusociality is reviewed, suggesting that the Meliponini and Apini social behaviors arose long ago (Cretaceous), but many questions remain unanswered due to uncertainty regarding phylogenetic of corbiculate bees. An updated list highlights the importance of Brazil as a megadiverse country with a total of 244 valid species and about 89 undescribed forms, placed in 29 genera. Knowledge on nesting sites is also important for stingless bees conservation and new data help to fill in many gaps in this area. In addition, studies are presented on how the bees communicate the location of food sources and how they identify which flowers they visited, as well as on topics such as flight distances, sugar sources used by the bees, rare or endangered species and how they adapt to extreme environmental conditions. Other contributions examine the morphologies of these bees, including the exocrine glands they contain, which produce several substances that underlie their colonial life and are used to regulate their social organization. This theme is picked up in other papers, which look at their plastic division of labour and how they partition tasks between different groups of bees inside the nest.

Stingless bees are promising alternatives in commercial pollination, produce honey, propolis and wax. But their role in improving biodiversity is essential. At this moment, the worldwide decline of the honeybee is well-known, caused by a complex mix of factors – from emerging diseases to low-quality forage. In this context, it is clear that it will be very important to investigate new possibilities to tap into the biodiversity of native bees as pollinators and find local solutions for their conservation. Hence, it is likely that the future of bee research will focus more and more on the stingless bees. Sociobiology, a journal that is now under Brazilian coordination, is aware of the importance of these bees in tropical areas and thanks all authors and reviewers for this interesting and important special issue.

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