



APIMONDIA

48TH INTERNATIONAL CHILE
APICULTURAL CONGRESS 2023

September 4th - 8th, 2023

Sustainable Beekeeping, from the south of the world

ABSTRACT BOOK

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OP-202

Managed Native Bees (*Scaptotrigona Aff. Postica*) and Wild Pollinators Impact on Açai Palm (*Euterpe Oleracea Mart.*) Yield In Eastern Brazilian Amazon

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Agricultural expansion is a major driver of habitat loss, which triggers biodiversity decline, including wild pollinators, and affects crop production. 76% of world crops are dependent on biotic pollination, therefore Integrated Crop Pollination (ICP), the arrangement of managed and wild bees combined with farm practices that support wild pollinators (e.g. habitat management), could help reverse negative impacts of pollinators deficit in tropical crops, while maximising benefits to producers. In the Amazon River delta, the Açai palm (*Euterpe oleracea* Mart. *Areaceae*) is unmatched among native forest plants in its cultural, social and economic importance to the region. Its thick juice (“vinho do açai”) is an important staple food in both rural and urban populations. We applied the ICP approach to açai palm production in the eastern Brazilian Amazon and evaluated the effects of a native managed stingless bee, *Scaptotrigona postica*, and landscape-level forest conservation on yield and socioeconomic outcomes, on 18 açai palm plantations in northeast Pará state, Brazil. We found that managed stingless bees and forest cover enhanced flower visitor abundance on açai palm inflorescences, but visitor abundance increases attributed to managed bees were associated with shifts in flower visitor evenness and diversity, due to reduced visitation of wild bees close to managed colonies. Fruit production on inflorescences was positively related to bee abundance and bee diversity. Consequently, overall pollination efficiency was lower in plantations dominated by managed bees, especially when native forest cover in the surroundings was low. At the hectare scale, managed bees and landscape-level forest conservation had complementary effects on fruit yields, but additional costs of bee colonies mean profits were largely explained by surrounding forest cover. We concluded that managed bees have great potential to boost açai fruit yields, but the increased environmental and socioeconomic risks associated with this activity indicates that growers should prioritise forest conservation and habitat restoration to safeguard natural pollination ecosystem service and improve the overall sustainability of açai fruit production in the eastern Brazilian Amazon.

Grant: CNPq/MCTI/IBAMA/Associação A.B.E.L.H.A. 400568/2018-7

