

New insights on pest fruit fly species across oceanic islands

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Species that are dispersed across oceanic islands can have strong population structures due to genetic isolation. As an example, the mango fruit fly, *Bactrocera frauenfeldi*, is currently considered to be one of

several similar members in a species group, including three major pests, distributed across Southeast Asia, Australasia, and Oceania. In a study published in *Systematic Entomology*, researchers used phylogenomics—the intersection of the fields of evolution and genomics—to evaluate the relationships among species in the *B. frauenfeldi* species complex and two closely related species.

Based on structure, biogeography, and [phylogenetic analyses](#), the team concluded that there are five [distinct species](#) in the complex, and that the differences between *B. frauenfeldi* and *B. albistrigata* pests are part of a continuum that cannot be separated into distinct evolutionary groups.

The researchers also found that a method that's considered a universal identification tool for all [animal life](#) could not reliably distinguish between most species they studied.

They stressed that understanding the evolutionary relationships between the various species in this group will provide essential data that will aid pest management, have ramifications for international agricultural trade, and contribute to a better understanding of how species diversify and specialize across islands.

"With phylogenomics methods, we can settle disputes on species boundaries that have been unclear for decades, and greatly advance management of pest species on a global scale," said lead author Camiel Doorenweerd, Ph.D., of the University of Hawaii.

More information: Camiel Doorenweerd et al, A phylogenomic approach to species delimitation in the mango fruit fly (*Bactrocera frauenfeldi*) complex: A new synonym of an important pest species with variable morphotypes (Diptera: Tephritidae), *Systematic Entomology* (2022). [DOI: 10.1111/syen.12559](https://doi.org/10.1111/syen.12559)

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