

New centralized pollination portal for better global bee data creates a buzz

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A powerful new way to fill major gaps in public bee data—including from Africa, Asia and other under-reported zones—has been addressed with a centralized tool for consolidating bee pollinator occurrences

around the globe.

Called [BeeBCD](#), the package, outlined in a new *Scientific Data* journal article, brings together more than 18 million bee occurrence records from multiple public and private databases to improve accuracy and accessibility of species data from around the world for future conservation, research and farming management.

The rationalized bee occurrence datasets will help support future plant and [crop production](#)—as well as for important scientific communications, says lead author, Flinders University bee expert Dr. James Dorey.

The new BeeBDC package complements and links to the existing [bdc](#) and [CoordinateCleaner](#) as a new "arsenal" for entomologists and other experts to quickly and reliably mobilize occurrence datasets, he says.

"Simplifying the workflow to use global bee occurrence data has been a big task—and will be foundational for biodiversity analysis, particularly with climate change, land clearance and pollution leading to rising extinction rates, crop failure and loss of native plant diversity.

"With mounting pressures on pollinating insects and other animals, we hope this 'democratization' of a consistent reference point for species occurrence data will be an example for other such projects to follow. We already have researchers around the world using BeeBDC and the database to examine important continental and clade-wide questions connected to bee-plant and bee-environment interactions, impacts of invasive species, and broad bee ecology and evolution.

"The project has already shown that regions with potentially high bee species diversities, such as Asia and Africa, are very under-represented in the data collection, so this central portal could inspire more reporting

from these important and under-funded regions into the future."

The US Department of Agriculture (USDA) says native plants as well as more than 100 [food crops](#) valued at US \$18 billion grown in the United States depend on pollination, including from more than 4,000 species of wild bees. As well as honeybees, the department notes many environmental stressors on both native and managed pollinators including clean air and water, other habitat changes, pesticides and [climate change](#).

Senior author Dr. Neil Cobb, Director of the US not-for-profit Biodiversity Outreach Network and lead principal investigator of the iDigBees.org project, says BeeBDC provides "a significant contribution to address the 'Wallacean Shortfall,' by simply documenting where the 20,000+ species of bees occur "so we can begin to understand their evolutionary biogeography and better inform conservation efforts."

"These services, and many organizations, are helping to bring together science, researchers and the general public," Dr. Cobb says. "We need to widen and increase our collective efforts to reduce the impacts of human activities on our environments to improve outcomes for communities around the world."

Authors of the article in *Scientific Data* hope the new model will enable The International Union for Conservation of Nature (IUCN) Wild Bee Specialist Groups to "spring into the task of assessing and conserving the world's bee diversity."

"The BeeBDC project was inspired by wanting to allow anyone to safely access and use these critical pieces of information, and not just 'mega labs' at wealthy institutions," adds Dr. Dorey.

"Creating this [treasure trove](#) of easy-to-access, audited information will

now inspire new research into important fields of discovery and encourage better public outreach materials," he says, also acknowledging community science data in iNaturalist and data aggregators such as the Symbiota Collection of Arthropod Network (SCAN) and Global Biodiversity Information Facility, which also encourage understanding of the natural world around us.

More information: James B. Dorey et al, A globally synthesised and flagged bee occurrence dataset and cleaning workflow, *Scientific Data* (2023). DOI: [10.1038/s41597-023-02626-w](https://doi.org/10.1038/s41597-023-02626-w). On *bioRxiv*: DOI: [10.1101/2023.06.30.547152](https://doi.org/10.1101/2023.06.30.547152)

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