

Bee species with little known nesting-behavior observed to use plastic instead of leaves

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A *Megachile patellimana* female with a leaf piece and a female with cut lengths of plastic are shown. Credit: Sarah Kathleen Gess

Little is known about the nesting activities of some lineages of megachiline bees. Dr. Sarah Gess, affiliated with both Albany Museum and Rhodes University, South Africa, and Peter Roosenschoon, Conservation Officer at the Dubai Desert Conservation Reserve, United Arab Emirates, made use of their earlier observations gathered during a survey on flower visitation in the spring of 2015, to fill some gaps in the knowledge of of three species from such lineages.

Among their findings, published in the open access *Journal of Hymenoptera Research*, is a curious instance of a bee attempting to build brood cells using green pieces of plastic. Having examined two nests of the leafcutter bee species *Megachile (Eurymella) patellimana*, they report that one of the females nested in burrows in compacted sandy ground beneath a plant, and the other - in the banks of an irrigation furrow.

However, while the former was seen carrying a freshly cut leaf, the latter seemed to have discovered a curious substitute in the form of green plastic. Later on, upon checking the nest, the researchers found that the phenomenon they had observed was no isolated incident - at least six identical pieces of narrow, tough, green plastic were grouped together in an apparent attempt to construct a cell. It turns out that the bee had been deliberately cutting off approximately 10-millimetre-long pieces with its large and strong toothed mandibles, before bringing them back to the nest.

"Although perhaps incidentally collected, the novel use of plastics in the nests of bees could reflect ecologically adaptive traits necessary for survival in an increasingly human-dominated environment," the authors quote an earlier study.



The nest of *P. grandiceps* after emergence of imagines, visible trapped between their natal nest and a nest of *Megachile maxillosa*. Credit: Peter Alexander Roosenschoon

The two studied mason bee species (*Megachile (Maximegachile) maxillosa* and *Pseudoheriades grandiceps*) were seen to construct their nests using a mixture of resin and sand in pre-existing cavities, such as trap-nests, above the ground. The researchers note that resin is a common nest-building material among numerous species of mason bees, also known as resin bees. Previously, it has been suggested that apart from making the nest waterproof, the plant secretions may contain substances that fend off parasites.

The authors' earlier [paper](#) exploring the flower visitation by [bees](#) and wasps in the Dubai Desert Conservation Reserve is also published in the open-access *Journal of Hymenoptera Research*.



An image of the mason bee species *Pseudoheriades grandiceps* collected from the studied nest. Credit: Peter Alexander Roosenschoon

More information: J. Scott MacIvor et al, Bees collect polyurethane and polyethylene plastics as novel nest materials, *Ecosphere* (2013). [DOI: 10.1890/ES13-00308.1](https://doi.org/10.1890/ES13-00308.1)

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