The mallow-bee

Notes on a particular, small bee visiting mallow flowers in the foothills of the Andes in northwestern Argentina

In northwestern Argentina, in the middle section of Valles Calchaquíes, south of the confluence of Río Angastaco and Río Calchaquí, rises a dark mountain range of ancient, metamorphic black slate: *Cerro Negro*. During winter, temperatures here often drop below freezing, but on hot summer days, the dark rock heats up so much in the sun that it cannot be touched with the palm of hand. Nevertheless, this completely dry rock massif is home to a very varied, often xerophytic flora, whose flowers from spring to fall attract an equally varied insect fauna and also some species of hummingbird.

Of the plants with long-lasting bloom, the mallows (Malvaceae) are worth mentioning, such as the ground-hugging *Herissantia crispa* and *Sida abutilifolia*, or the upright *Pseudabutilon virgatum*, *Sida variegata*, *Sphaeralcea bonariensis*, and *Tarasa trisecta*. Their flowers share a tubular column (columna) formed from fused stamens, typical of many mallows, which rises in the center of the corolla and encloses the styles of the carpels.

Among the visiting insects, a small bee that frequents only these flowers stands out. When visiting the flowers, with its small, slender body it winds itself around the column at the base of the corolla and kicks off with its hind legs. It thus spins around the column like on a carousel, collecting pollen and nectar or feeding on them. The following pictures show this bee in action on a *Pseudabutilon virgatum* flower.

Full resolution of the images is achieved by setting the reproduction scale to 100% or 1:1 in the PDF reader.

September 2025 – mario@giorgetta.ch

img01 -25.72205°, -066.17424°, 2283m asl, Mar15 2023 16:37

At the entrance to a canyon on *Cerro Negro*. The vertically layered slate allows rainwater to drain away immediately through its cracks during the short rainy season (January, February), resulting in the very dry character of this environment. However, the dense pubescence of many of the plants growing here indicates that they obtain their water mainly from humidity in the air. The following macro shots (img03-img09) were taken right here at this location among the giant columnar cacti *Echinopsis atacamensis* ssp. *pasacana*.

img02 -25.72563°, -066.17505°, 2353m asl, Feb05 2014 18:29

Image of an end of stem of the approximately 1 m tall, shrubby mallow *Pseudabutilon virgatum* with a visiting mallow-bee. The plant's dense, tomentose pubescence and its characteristic fruits with about 9 mericarps are striking. The upper flower shows the about 2 mm long stamen column, around which the ca. 7 mm long bee is winding its way on the lower flower. This photo was shot nine years before the other bee pictures and from their location at the entrance to the canyon, about 500 meters further up the gorge.

img03 -25.72210°, -066.17432°, 2275m asl, Mar14 2023 17:37

In the final days of summer, the following five macro shots taken during seven minutes show a mallow-bee feeding on pollen grains for its own consumption on a *Pseudabutilon virgatum* flower. The insect takes its time and is hardly bothered by the photographer's presence. Here, it is stealing pollen grains from the sticky stigma of a carpel.

img04 -25.72210°, -066.17432°, 2275m asl, Mar14 2023 17:42

The typical position adopted by the bee when visiting mallow flowers, wrapped around the column. It has already cleaned out the pollen-bearing anthers of the flower with their clearly visible two thecae. By virtue of its trampling around the column, most of the remaining pollen now sticks to its own body and furthermore to the sticky stigmata of the carpels at the top.

img05 -25.72210°, -066.17432°, 2275m asl, Mar14 2023 17:41

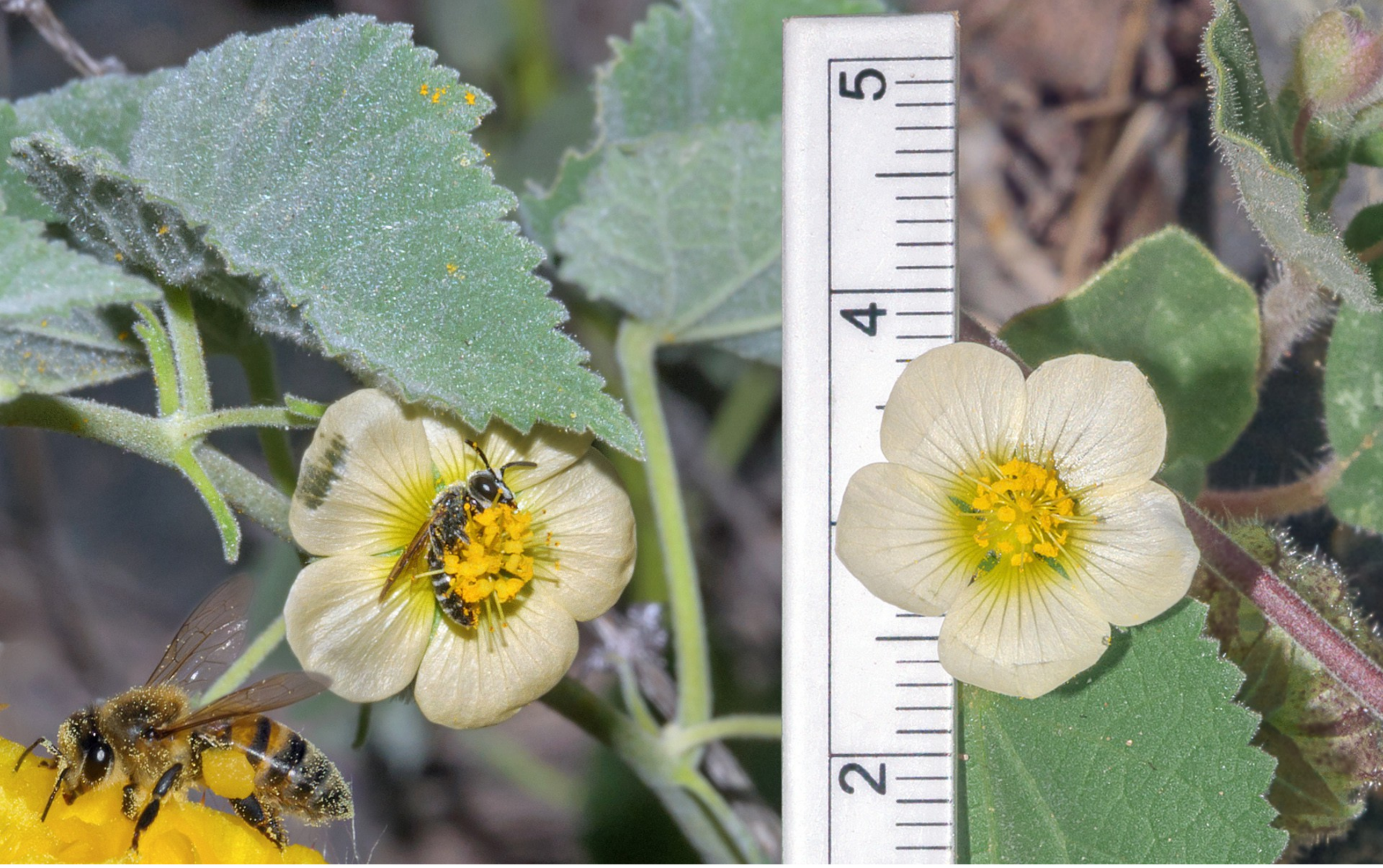
Nice to see how the bee places the pollen grains on its slightly outstretched, broad tongue (labium) and then scoops them into its throat with its mandibles. Comparing the size of the pollen grains with the bee, for the latter it must be like us humans eating blueberries.

img06 -25.72210°, -066.17432°, 2275m asl, Mar14 2023 17:36

Like on a merry-go-round, the bee spins around the column of the mallow flower, clearly enjoying itself.

img07 -25.72210°, -066.17432°, 2275m asl, Mar14 2023 17:43

Final cleaning of the last remaining pollen grains scattered on the petals of the Pseudabutilon flower.



img08 -25.72215°, -066.17436°, 2278m asl, Mar14 2023 17:22

The picture with this mallow-bee (perhaps the same individual) was taken ten minutes before and ten meters away from the macro shots img03-img07, on a flower of the decumbent mallow *Herissantia crispa*. To the right is an inset image of a Herissantia flower of the same size with a scale, indicating that the mallow-bee is about 7 mm long. At the bottom left, for comparison, is a honeybee *Apis mellifera* (Apidae) at same scale, which, with a body length of 11-13 mm, would not be capable of such acrobatics on these mallow flowers.

img09 -25.72209°, -066.17435°, 2277m asl, Mar14 2023 17:47

The flowers of *Herissantia crispa*, which are slightly smaller than those of *Pseudabutilon virgatum*, also have a wide, open corolla with a 2 mm high column. In contrast to the rather rare Pseudoabutilon, *Herissantia crispa* is very common in this area and can be found on all substrates and at all altitudes. Always close to the ground, this mallow may grow densely like a carpet with countless flowers, depending on topography.

img10 -25.71935°, -066.18056°, 2371m asl, Mar19 2025 16:25

Herissantia crispa with flowers and fruits in the slate scree high up on the slopes of Cerro Negro, where it often grows in company with the similar mallow *Sida abutilifolia*. Furthermore, in the picture, the bromeliad *Deuterocohnia haumanii* and, amidst the Herissantia, the linear leaves of *Phalocallis coelestis* (Iridaceae). In shady spots, the numerous cracks and crevices in the weathered slate are appreciated by some wild bees for their nests.