

Mammillarias* of northern New Mexico: *M. wrightii* and *M. meiacantha by Root Gorelick

Many cactus growers eschew heating their plants in winter, often overwintering plants in unheated greenhouses or cold-frames. I take this to an extreme, growing cacti unprotected outdoors in North Kawartha, Ontario, Canada, where winter temperatures invariably descend to or below -30°C (-22°F) for a few nights each winter. Several species of *Coryphantha* subgenus *Escobaria* do great in my garden through Canadian winters, but I have yet to try any species of *Mammillaria*. The most promising would be the two species of *Mammillaria* native to northern parts of the state of New Mexico, which is as far north and probably as cold as any *Mammillaria* species get. These are the hooked-spined *M. wrightii* and the straight-spined *M. meiacantha* (considered by some to be a variety or subspecies of *M. heyderi*), the latter of which barely makes it into Colorado.

Mammillaria wrightii is native as far north as Santa Fe in Santa Fe County and the small Navajo (Diné) community of Torreon in far western Sandoval County. Mean annual low temperatures in Santa Fe are -20°C (-4°F), with record low temperatures of -31°C (-23°F). Unfortunately, I know southern New Mexico far better than the northern half of the state, so only have photos of both *M. wrightii* and *M. meiacantha* from central portions of New Mexico, where it still gets fairly cold.

Mammillaria wrightii is an elegant species, with unbranched stems, with 9–31 spines per areole, including one or possibly a few long hooked central spines per areole that are darker in colour and much longer than the other spines, which are white. The hooked spines latch



Fig. 1 *Mammillaria wrightii*, 12km E of Cliff, Grant Co, NM, elevation 1,494m (4,900ft), 12.5cm (5in) diameter (6 March 2020)

onto everything. Stems are flattened disks when young, spherical when middle aged, and slightly taller than wide when old. I have never seen *M. wrightii* in flower in the field, but it has large flowers whose petals are lustrous magenta with fringed margins. See James N Stuart's photo from the outskirts of Santa Fe (www.inaturalist.org/observations/30061358).

Mammillaria wrightii is widespread but never very common. *M. wrightii* had previously been listed in the New Mexico Rare Plants list (nmrareplants.unm.edu/rarelist.php), but was eventually removed from that list because it was not sufficiently rare. Nonetheless, various websites, such as SEINet (swbiodiversity.org/) withhold locale information of herbarium specimens of *M. wrightii*, other than to county level, because of its relative rarity. In far southern New Mexico, *M. wrightii* is far less common than the only other hooked-spined *Mammillaria* native to New Mexico, *M. grahamii* (assuming, possibly erroneously, that *M. viridiflora*, synonym *M. barbata*, which barely makes into the southwest corner of New Mexico in Hidalgo County, is merely a green-flowered form of *M. wrightii*).

Figures 1–4 of *M. wrightii* were taken approximately 12km east of the town of Cliff, in 'the Gila' of Grant County, New Mexico, at an elevation of around 1,494m (4,900ft) and latitude of 33°N. This population had several seedlings, as well as the biggest specimen I have ever seen, measuring 12.5cm (5in) in diameter. The seedlings were growing in deep shade, near Bear Creek, which is a major tributary of the Gila River, growing not far above the 100-year flood line in the shade of a large alligator juniper (*Juniperus deppeana*). In fact, these *M. wrightii* seedlings were growing in soil mostly composed of decaying juniper leaves. By contrast, the large specimen was growing in a clearing above Bear Creek, in rocky soil.



Fig. 2 *Mammillaria wrightii*. Same plant as Fig. 1



Fig. 3 *Mammillaria wrightii*, 12km E of Cliff, Grant Co, NM, elevation 1,460m (4,760ft), near Bear Creek, under *Juniperus deppeana* (2 March 2020)



Fig. 4 *Mammillaria wrightii* seedlings. Location as in Fig. 3



Fig. 5 *Mammillaria meiacantha*, I-40 near Guadalupe-Quay County border, elevation 1,326m (4,350ft) (19 March 2020)

In New Mexico, *Mammillaria meiacantha* is a more common species than *M. wrightii*. The two species have overlapping ranges, but *M. meiacantha* extends farther to the east and *M. wrightii* extends farther to the west. I have found *M. meiacantha* at several sites in both southern and central New Mexico, but have not botanised in far northern parts of the state. *M. meiacantha* grows almost to the Colorado border, near the town of Cimarron in Colfax County. See for example the herbarium specimen collected at Vermejo Park Ranch along the south shore of the Cimarron River at 36.51°N, -104.96°W, at an elevation of 2011m (6596 ft): Ben Legler 9955 (19 July 2008) RM 901164. The ski resorts of Taos are southwest of this locale. The Colorado border is just north at 37°N. Not much farther south and at an identical elevation, *M. meiacantha* has been collected northeast of the city of Las Vegas, New Mexico at 35.84°N, -104.99°W: Marc A. Baker 12577 (28 June 1997) NY 03860479. Both of these specimens were from the eastern edge of the Sangre de Cristo Mountains, which is what the Rocky Mountains are called in northern New Mexico and far southern Colorado. *M. meiacantha* has also been documented from a single locale in Colorado: at Little Black Mesa in Baca County, which is about 5km east-northeast of the point where the borders of Colorado, New Mexico and Oklahoma all intersect (Barnett & Barnett, 2016).

Mammillaria meiacantha has flattened hemispherical unbranched stems and is typically a wider and shorter plant than *M. wrightii*. *M. meiacantha* only possesses straight spines and never very many of them, with 6–8 spines per areole, which means that the epidermis is visible and the plant always looks green. Figure 5 is from a plant along Interstate 40 near



Fig. 6 *Mammillaria meiacantha*, Achenbach Canyon, Organ Mountain, Doña Ana County, elevation 1,640m (5,380ft) (3 May 2005)

the Guadalupe-Quay County border. Flowers of *M. meiacantha* are large but not particularly striking, having white or faded pink inner petals with a darker midstripe. The petals lack fringing. Figure 6 is from southern New Mexico, at Achenbach Canyon, in the Organ Mountains of Doña Ana County, New Mexico, showing striping of the outer petals of large flowers on a small plant, with just a few weak spines per areole, which is typical for *M. meiacantha*. At this locale in southern New Mexico there are also many plants of *M. heyderi*, which have roughly twice the number of spines per areole (10–18 spines), all of which are straight, on unbranched stems that grow very flat to the ground.

If I can obtain seedlings of *Mammillaria wrightii* or *M. meiacantha*, I would certainly try them in my outdoor garden in Canada. My one specimen of *M. wrightii* just made it through its first winter without any damage. While there was not much snow cover, which means only minimal thermal insulation, night time temperatures only got down to -27°C this past winter. Usually, we see several nights at or below -30°C , and I would like to see how these plants do through several successive colder winters before truly vouching for their hardiness.

REFERENCES

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