Glandulicactus uncinatus var. *wrightii* at Anthony Gap

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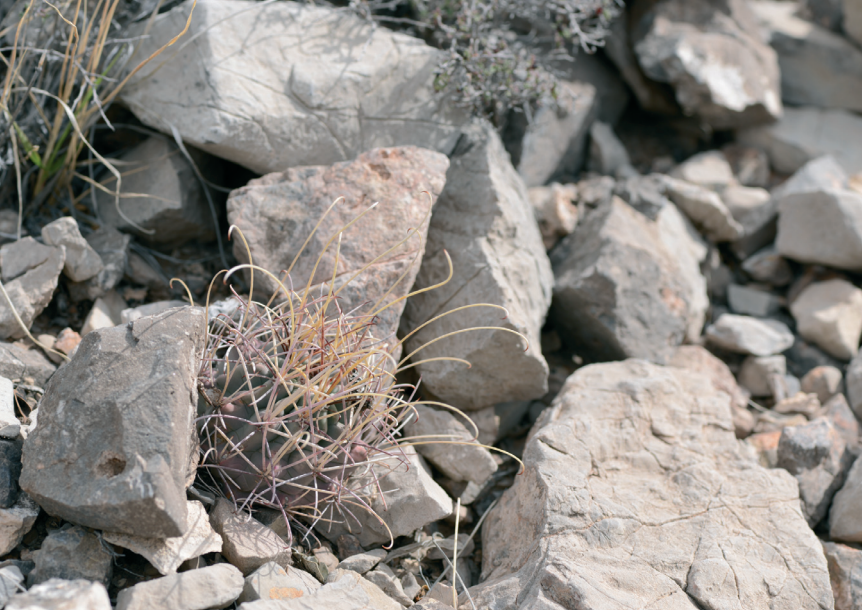
There is a large healthy population of *Glandulicactus uncinatus* var. *wrightii* at Anthony Gap, which is halfway between El Paso, Texas and Las Cruces, New Mexico, USA. This population has many small, medium, and large plants, with many fruiting specimens.
All photos by the author.

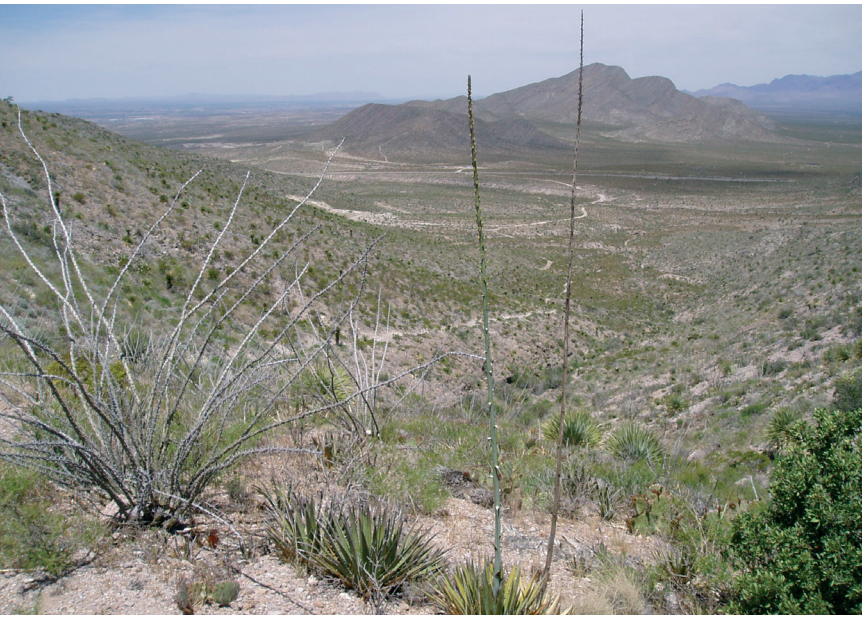
Glandulicactus uncinatus var. *wrightii* is a widespread plant in the Chihuahuan Desert of north-eastern Mexico (large portions of Coahuila and eastern Chihuahua, as well as smaller portions of Sonora, Durango, Nuevo León, and Zacatecas) and the trans-Pecos portions of west Texas and far southern New Mexico, ie between the Rio Pecos and Rio Grande (Powell & Weedin, 2004). *G. uncinatus* var. *wrightii* is supposedly disjunct from the type variety, *G. uncinatus* var. *uncinatus*, which grows farther south, in San Luis Potosí, and therefore should possibly be considered a subspecies rather than a variety. Joël Lodé (2015) also illustrates *G. uncinatus* var. *uncinatus* with mostly green fruits from Nuevo León. I have never seen the type variety/subspecies, but understand that it largely varies from var. *wrightii* by the colour of the mature pericarpels/fruits, which are dull green in variety *uncinatus* and bright red in variety *wrightii* (Zimmerman & Parfitt, 2003) (Fig. 1). I am not sure that fruit colour warrants a distinct infraspecific epithet at either rank, but that is for taxonomists and people who have seen both taxa in habitat to debate.

The etymology of *Glandulicactus uncinatus* var. *wrightii* is informative. *Glandulicactus* refers to the small yellow extrafloral nectaries in each areolar groove. Similar nectar-bearing elongated areoles in a groove growing

Fig. 1 ***Glandulicactus uncinatus*** **var.** ***wrightii*** **at Anthony's Nose at the Texas-New Mexico state line (11 June 2012).** ***G. uncinatus*** **var.** ***wrightii*** **always has bright red fruits, the colour of strawberries, with a few scales (vestigial leaves and areoles) and with persistent tepals. Note the black seeds inside the dried-up, abscised fruit below the bright red fruit. By contrast, the type variety,** ***G. uncinatus*** **var.** ***uncinatus*****, has green fruits**

Fig. 2 ***Glandulicactus uncinatus*** **var.** ***wrightii*** **with its classic long hooked central spines, although this specimen has uncharacteristically short central spines, only about 5–6cm long. Note young flower buds and that all spines are straw-coloured, ie stramineous. This plant is growing at the centre of a fairy ring of** ***Agave lechuguilla*****, at the far southern base of North Anthony's Nose (11 March 2020)**





along the upper side of each tubercle are also present in *Coryphantha*, *Hamatocactus*, and *Ancistrocactus*. Extrafloral nectaries in these cacti are highly modified, very short, barely lignified spines, which are themselves highly modified leaves (Mauseth, 1982). Regarding *G. uncinatus* var. *wrightii*, even Britton & Rose (1922: 146) noted, "While these glands are usually sessile, they are sometimes elongated and suggest stunted spines." The species name *uncinatus* means hooked, in reference to the one very long straw-coloured central spine per areole and possibly the three lowest radial spines which are short and also hooked (Figs. 2–3). The variety name *wrightii* commemorates Charles Wright who collected cacti for Asa Gray in Texas in 1849, with notable cactus collections between San Antonio and El Paso, and again collected cacti for Gray in 1851 as part of the boundary survey between Mexico (Chihuahua and Sonora) and the US (modern day New Mexico and Arizona). In naming this variety, George Engelmann (1856: 272) listed the

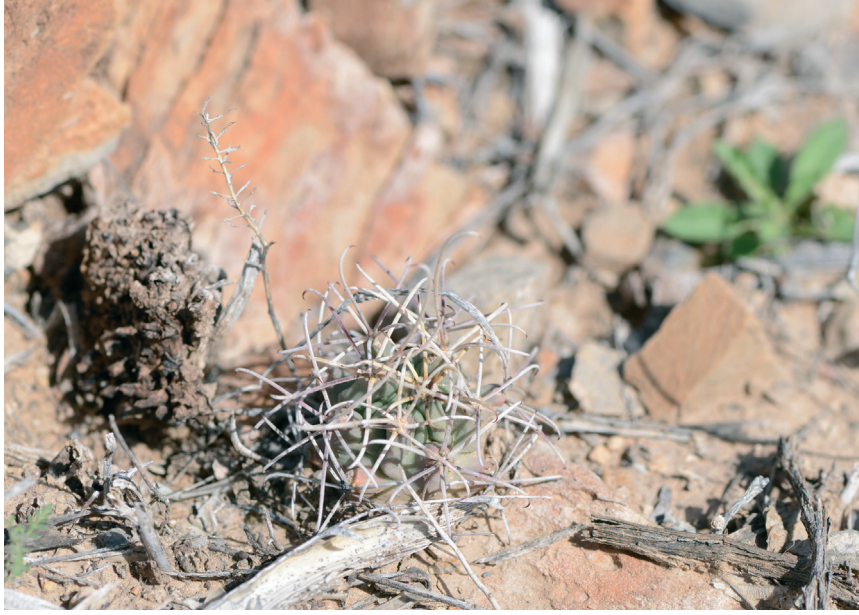
Fig. 3 (top) A fairly young, but flowering-size, *Glandulicactus uncinatus* var. *wrightii* showing conspicuous hooked radial and central spines. This plant is unusual in having a purple epidermis in winter, when most other specimens here were bluish-green. Anthony's Nose, Franklin Mountains State Park, Texas (28 Feb 2020)

Fig. 4 (middle) View from Anthony's Nose at the New Mexico-Texas border looking NNW. The hiking trail (Sierra Vista Trail), NM Highway 404, and North Anthony's Nose are clearly visible. The Organ Mountains are also visible in the far right background (1 May 2005). This is the only known habitat for *Coryphantha dasyacantha* in New Mexico (Gorelick 2006). At this location, *Glandulicactus uncinatus* var. *wrightii*, *Epithelantha micromeris*, and *Coryphantha* (*Escobaria*) *sneedii* can be found. I have also found plants that look just like *C. sneedii* var. *organensis* just south and uphill from here

Fig. 5 (bottom) *Glandulicactus uncinatus* var. *wrightii* (above) and *Echinocactus horizonthalonius* (below) looking very similar in terms of epidermal colour and size. Note just to the left of these two living plants are two dead specimens of *Glandulicactus* var. *wrightii* (above) and one dead *Echinocactus horizonthalonius* (below). These are some of the very few dead specimens of either species at the southern base of North Anthony's Nose (11 March 2020)

type locality as "Near El Paso and on the Rio Grande below." Charles Wright is also commemorated for plants he collected in 1851 of *Mammillaria wrightii*, which is another cactus with long hooked central spines, albeit not nearly as long as those in *G. uncinatus* (Gorelick, 2021a,c).

Glandulicactus uncinatus var. *wrightii* has been placed in at least nine different genera. It was originally included in *Echinocactus* by George Engelmann, which by modern terms was a catch-all genus. Subsequently – in chronological order since first use – *G. uncinatus* var. *wrightii* was placed in *Hamatocactus* by Charles Russell Orcutt, *Ferocactus* by Nathaniel Lord Britton and Joseph N Rose albeit with trepidation, *Thelocactus* by William Taylor Marshall, *Glandulicactus* by Curt Backeberg, *Ancistrocactus* by Lyman Benson, *Echinomastus* by Frederik Marcus Knuth, *Sclerocactus* by Nigel P Taylor, and *Pediocactus* by Josef J Halda. While the choice of genus *Glandulicactus* seems sensible for *G. uncinatus* var. *wrightii*, there are some who object to genera with one or only a handful of taxa because the word 'genus' means group or family. There are currently only two species in the genus *Glandulicactus*: *G. uncinatus* and *G. crassihamatus* (including *G. mathssonii*).



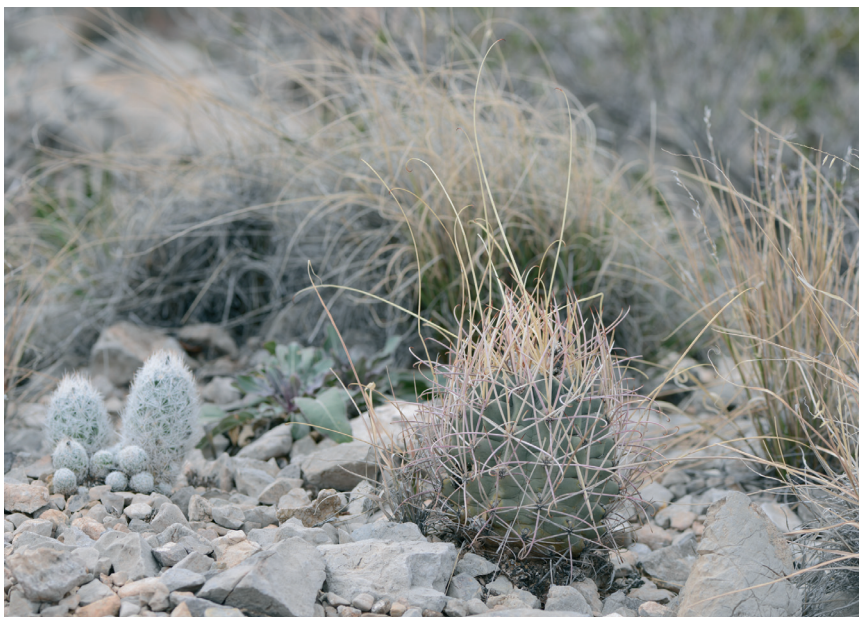


Fig. 6 (top) A spherical seedling of *Glandulicactus uncinatus* var. *wrightii* showing the hooked nature of three lower radial spines, which are obvious even in seedlings. This plant is just starting to grow long central spines. North Anthony's Nose (11 March 2020)

Fig. 7 (middle) Another spherical seedling of *Glandulicactus uncinatus* var. *wrightii* in which hooked lower radial spines are obvious. This plant has not only started growing long central spines, but also has the withered remains of a fruit. Note how even the green grasses here resemble these cactus spines. Anthony's Nose (16 Aug 2007)

Fig. 8 (bottom) This is probably the tallest plant, approximately 10cm tall, of *Glandulicactus uncinatus* var. *wrightii* at Anthony Gap and with the longest central spines, which are approximately 16cm long. Note how the dried grasses closely resemble the straw-coloured hooked spines. Anthony's Nose, Franklin Mountains State Park, Texas, at an elevation of 1,550m, with *Coryphantha sneedii* var. *sneedii* (28 Feb 2020)

Fig. 9 A recently deceased big plant of *Glandulicactus uncinatus* var. *wrightii* near Mule Ears Peak, Big Bend National Park, Texas, with central spines approximately 15cm long and the plant body probably about 20–30cm tall when alive. I visited this locale after 11 months had elapsed without a trace of rain, but with three record freezes in the previous four months (27 April 2011)

In New Mexico, *Glandulicactus uncinatus* var. *wrightii* can be found in the Guadalupe Mountains of Eddy and Otero Counties, as well as just east of the Rio Grande, in the Franklin, San Andres, and Caballo Mountains of Doña Ana and Sierra Counties (Benson, 1982). I have never seen *G. uncinatus* var. *wrightii* in the Organ Mountains, but would not be surprised if it were there. There are iNaturalist records of *G. uncinatus* from the Sacramento Mountains of Lincoln County and one iNaturalist record from near the Rio Grande in San Acacia in Socorro County, between the town of Socorro and the Sevilleta National Wildlife Refuge (Julie Gerrits's iNaturalist observation 49493787).

Although Clark Champie (1974: 36) reported that *Glandulicactus uncinatus* var. *wrightii* "is not abundant anywhere near El Paso," here I report on a very healthy population with many large, medium, and small (but no extra-large) plants of *G. uncinatus* var. *wrightii* at the two mountains surrounding Anthony Gap, ie Anthony's Nose and North Anthony's Nose. These are in northern El Paso County, Texas and southern Doña Ana County, New Mexico, approximately 5km east of the town of Anthony (Fig. 4). I explored along the old jeep tracks only up to an elevation of 1,575m at Anthony's Nose, which is about a quarter of the way to the peak at 2,111m, and only to 1,430m at the southern edge of North Anthony's Nose. Anthony Gap itself is at 1,350m. When I refer to 'Anthony Gap' herein, I am referring to these bases of Anthony's Nose and North Anthony's Nose. *G. uncinatus* var. *wrightii* is relatively easy to find at Anthony Gap wherever there is a modicum of topography. There are only a few dead plants of *G. uncinatus* var. *wrightii* here, which are easily identifiable by their remaining skeleton of spines (Fig. 5). Other than right alongside NM Highway 404 and the El Paso Natural Gas main pipeline from the Permian Basin to Arizona at Anthony Gap, which are too flat for *G. uncinatus* var. wrightii, all immediately surrounding lands are protected to some degree and often contain *G. uncinatus* var. *wrightii*.

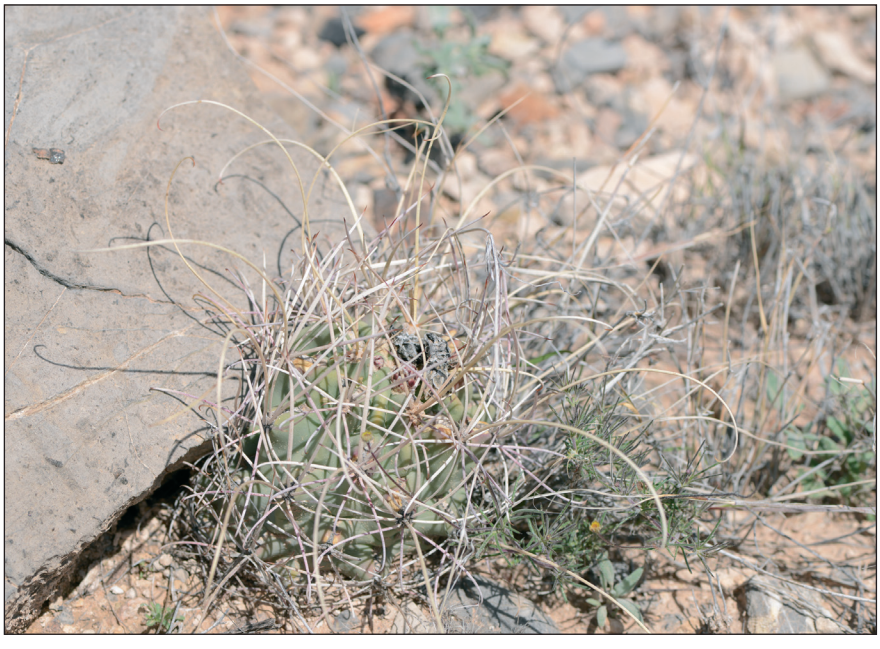


Fig. 10 *Glandulicactus uncinatus* var. *wrightii* with long central spines that have a gentle 90° turn halfway along the length of each spine, so that the base of each spine is oriented vertically whereas the distal end is oriented horizontally, for a dishevelled look. There are only a few plants at Anthony Gap with this odd spine shape. North Anthony's Nose (11 March 2020)

Fig. 11 (above) ***Glandulicactus uncinatus*** **var.** ***wrightii*** **showing the flattened radial spines with colours varying from straw-coloured to pink to red to purple. Anthony's Nose, near the Texas-New Mexico state line (28 Feb 2020)**

Fig. 12 (below left) ***Glandulicactus uncinatus*** **var.** ***wrightii*** **very close to the previous figure, but with plump bluish-green stems readily visible through the spines. Note the ten flower buds in which the outside surface of the tepals is red with a bright white margin. Note the grooved areoles with spines at the end of the areole closest to the tip of the tubercle and flower buds closer to the centre of the stem and the shoot apical meristem. North Anthony's Nose (11 March 2020)**

Fig. 13 (below right) Close-up of previous figure

Immediately to the north of the pipeline is Organ Mountains–Desert Peaks National Monument. Sandwiched between NM Highway 404 and the Texas state line are more federal lands under the auspices of the Bureau of Land Management. The Texas portion of Anthony's Nose is part of Franklin Mountains State Park, which encompasses most of the Franklin Mountains.

Fig. 14 ***Glandulicactus uncinatus*** **var.** ***wrightii*** **hunkered down for summer, with vibrant pink and red flattened radial spines completely obscuring the epidermis. Anthony's Nose, near the Texas-New Mexico state line (1 May 2005)**

['Nose' is an idiosyncratic synonym for 'Mountain'. There is some tradition here insofar as, since the 1600s, 'Anthony's Nose' has been the name of a small mountain on the eastern bank of the Hudson River near the town of Peekskill in Westchester County, New York, that supposedly resembles a human nose, much as does the peak of Anthony's Nose in the Franklin Mountains of El Paso County, Texas. As far as I know, nobody has asserted that North Anthony's Nose resembles a human nose. It is simply that North Anthony's Nose is immediately north of Anthony's Nose.]

Glandulicactus uncinatus var. *wrightii* is a very small unbranched barrel cactus, starting off spherical (Figs. 6–7), but eventually growing twice as tall as wide (Fig. 8). The stem is usually less than 15cm tall and less than 7.5cm in diameter. I have never seen plants larger than this at Anthony's Nose and North Anthony's Nose, but plants up to 30cm tall are reported by Zimmerman & Parfitt (2003) in *Flora of North America*. I have seen a few such tall specimens at Big Bend National Park (Fig. 9). One of the most conspicuous features of this taxon is the single central spine, which is always hooked and straw-coloured, except being red to brown at the hook. On mature plants, central spines can be anywhere between 5–16.5cm long, with length of central spines relatively uniform on a given plant. Several plants at both the long and short end of this range of spine lengths grow at Anthony Gap (Gorelick, 2021c) (Figs. 2 & 8). The straw-coloured hooked central

Fig. 15 ***Glandulicactus uncinatus*** **var.** ***wrightii*** **hunkered down for spring (?!), with pink and red flattened radial spines, as well as straw-coloured central spines, completely obscuring the epidermis. North Anthony's Nose (11 March 2020)**

spines look superficially just like some of the grasses that *G. uncinatus* var. *wrightii* grows amongst (Fig. 8). Heil & Spellenberg (1993: 144) wrote about this taxon that, "The Wright's Fish-hook Cactus is quite easily camouflaged; the spines look like dried blades of grass or dead sticks. Most cactus hunters feel fortunate to spot one of these rarely seen plants." But there are so many plants of *G. uncinatus* var. *wrightii* at Anthony Gap that you should not need much luck to find several.

The long straw-coloured central spines usually stand vertically, with a slight bow over their length and then the tight curve that creates the terminal hook. But a few plants at Anthony Gap have central spines that start out by growing vertically, but then take a gentle 90° bend about halfway along the length of the spine, so that the distal end of the central spine is oriented horizontally, sticking out in a seemingly dishevelled manner from the plant body (Fig. 10). How do you measure the length of such spines? I have no idea what causes this unusual spine morphology, not even knowing whether it is environmentally induced or heritable. But, if one central spine takes this gentle 90° bend, then all the remaining central spines usually do likewise on that specific plant.

Three lower radial spines are also hooked on *Glandulicactus uncinatus* var. *wrightii*, but are much shorter, usually 2.0–3.5cm long, than the central spine (Figs. 3, 5–7 &10). These shorter hooked radial spines can be very helpful in identifying seedlings of this taxon insofar as, "*Glandulicactus* is the only genus of subfamily Cactoideae in the Flora [of North America] with strongly hooked, abaxial radial spines, conspicuous even on immature plants two centimeters in diameter." (Zimmerman & Parfitt, 2003: 207).

Glandulicactus uncinatus var. *wrightii* have 5–7 straight radial spines per areole that are flattened and can be (but are not always) much more vividly coloured than the straw-coloured hooked spines (Fig. 11). The straight radial spines are sometimes pink to red to almost purple (Figs. 12–13). These

Fig. 16 Chocolate-brown flowers on *Glandulicactus uncinatus* var. *wrightii* in cultivation in Tempe, Arizona (3 April 2005). This taxon must be easy to grow in cultivation because I had no problem with it growing quickly and flowering regularly when I lived in the warm dry climate of southern Arizona

Fig. 17 Same plant as previous figure, in flower eight years later, still in cultivation in Tempe, Arizona (25 March 2013). Note how the central spines are still largely oriented vertically, even at the thatched base of the old stem

colourful flattened radial spines can be just as spectacular as the single long hooked central spine. Some plants of *G. uncinatus* var. *wrightii*, though, have all of their spines being straw-coloured (Figs. 8, 10 & 18). All spines that are straw-coloured on this species – whether central or radial, whether hooked or straight – have a darker tip, at least at Anthony Gap (Figs. 1, 7 & 12–15).

Glandulicactus uncinatus var. *wrightii* is often described as having spines that do not obscure the epidermis. This is true when the plants are well hydrated, with their bluish green epidermis being readily visible between the spines perched on ribs with long internodes (Figs. 1–2 & 6–8). Epidermal colour when stems are well-hydrated can be very close to that of the sympatric *Echinocactus horizonthalonius* (Fig. 5). But in the heat of summer, especially before monsoonal rains, stems of *G. uncinatus* var. *wrightii*, at least here at Anthony Gap, shrink radically, with ribs constricting in typical accordion-like fashion and internodes become much shorter, probably from collapsing of the notch separating successive areoles on a rib, to the point where the epidermis is completely obscured by the spines (Figs. 12–13). The stems shrink to about one-third to one-half of their well-hydrated height and one-half to two-thirds of their well-hydrated diameter. While this seems drastic, the plants usually seem to recover completely. I have seen individual plants go through this dehydration and rehydration processes, but I do not live nearby, so do not know how long this recovery takes once rains arrive. Making the stem even less visible in summer, the epidermis turns a reddish-purple colour that closely resembles the colour of the flattened radial spines. There are also a few plants of *G. uncinatus* var. *wrightii* at Anthony Gap with a purplish epidermis in winter, but I do not understand what might be the cause of that (Fig. 3).

At Anthony Gap, *Glandulicactus uncinatus* var. *wrightii* seems to flower in April, when I have never been there. Flower buds are well developed by mid-March, with the outside of the unopened tepals being dark red with a wide bright white margin, which is a striking colour combination (Figs. 12–13). Champie (1974) reports that these flower during both March and April near El Paso, but at Anthony Gap, this probably means late March through much

Fig. 18 Three seedlings of *Glandulicactus uncinatus* var. *wrightii* at North Anthony's Nose (11 March 2020). The largest plant is 3–4cm in diameter. Both it and the second largest plant, on the right, which is 3cm in diameter, are already growing long central spines and flower buds. The epidermis of the plant on the left is bluish-green, while the epidermis of the plant on the right is purple. The smallest and greenest seedling, in the shade of a rock, is still not showing long hooked central spines nor flowers, but is only about 1cm in diameter, yet it is still clearly recognisable as *G. uncinatus* var. *wrightii*.

of April. Champie also reports that, with warm winters, *Echinomastus intertextus* can flower in late January near El Paso, but that is a month earlier than I have ever seen. The inside surface of opened flower tepals of *G. uncinatus* var. *wrightii* are described as being red, brick-red, orange-red, maroon, brownish-purple, and garnet. I have grown cultivated plants of this taxon with chocolate brown tepals, which is a colour mentioned in Schulz & Runyon (1930) (Figs. 16–17). Flowers are produced from the opposite end (the end closest to the plant body) from the spines of the elongated grooved areole. Fruits (technically, pericarpels) are ripe in late May and June (Fig. 1), with bright red outside flesh and tepals persisting at the top. Fruits/pericarpels contain scales that are vestigial leaves and areoles.

Glandulicactus uncinatus var. *wrightii* plants start flowering and growing full-length central spines at roughly the same age, when plants are only about 3–4cm in diameter (Fig. 18). These small plants can be comical looking, with central spines three times longer than the plant is tall. Plants just reaching sexual maturity are quite common at Anthony Gap, so there is a decent chance that we should be seeing mature plants for years to come.

Anthony Gap is a great place to see *Glandulicactus uncinatus* var. wrightii, which are numerous and close to a highway, and this is true near the bases of both Anthony's Nose south of the highway and North Anthony's Nose north of the highway (Fig. 19). Anthony's Nose and North Anthony's Nose are also great places to see many other choice cacti, such *as Mammillaria lasiacantha*, *Epithelantha micromeris*, and *Coryphantha sneedii* (Gorelick, 2020, 2021b). But be warned that this locale has a high density of *Agave lechuguilla*, which earns its common name of shin dagger (Figs. 20–21).

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Fig. 19 Typical habitat of *Glandulicactus uncinatus* var. *wrightii* at North Anthony's Nose (11 March 2020), with three plants of *Echinocactus horizonthalonius* in the foreground and one small plant of *G. uncinatus* var. *wrightii* in the centre background (out of focus).

Fig. 20 (above) *Agave lechuguilla* and *Fouquieria splendens* at North Anthony's Nose at the Texas-New Mexico state line (28 Feb 2020). This is a typical-looking habitat after climbing the steeper part of the initial trail up Anthony's Nose via the far southern end of the Sierra Vista Trail. While I just said "steeper", this is still probably driveable with a good off-road vehicle which are not allowed here. The proboscoid peak of Anthony's Nose is much steeper, apparently devoid of trails, and requires serious climbing skills, so much so that I have never explored more than this trail at the bottom quarter of the mountain.

Fig. 21 (left) Close-up of the previous figure, from just to the right of the dog's head, with *Coryphantha sneedii* var. *sneedii* (between leaves of the *Agave lechuguilla*), *C. tuberculosa* (right of *A. lechuguilla*), and possibly *C. dasyacantha* (upper right).

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