

RANGE OF *CYLINDROPUNTIA WHIPPLEI* (CACTACEAE) IN NEW MEXICO

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ABSTRACT

In New Mexico, *Cylindropuntia whipplei* is largely confined to the northwest quarter of the state. There are many documented localities from San Juan and McKinley counties, plus a few immediately to the east in Rio Arriba and Sandoval counties and south in Cibola and Catron counties. The species also is documented here from near the town of Gila, Grant County, far from other documented localities. A few other putative specimens of *C. whipplei* from New Mexico are questionably identified.

Cylindropuntia whipplei (Engelm. & J.M. Bigelow) F.M. Knuth var. *whipplei* is a relatively common species of cholla in the southwestern USA, with a center of distribution in the northern half of Arizona (Mohave, Yavapai, Coconino, Navajo, and Apache counties). It is easily visible along Interstate 40 between Seligman and Kingman (Figs. 1, 2) and along the South Rim by Grand Canyon Village. Its range extends short distances into adjacent Nevada, Utah, Colorado, and New Mexico, as well as short distances into southern Arizona (Gila Co.). This paper documents range limits of *C. whipplei* in New Mexico.

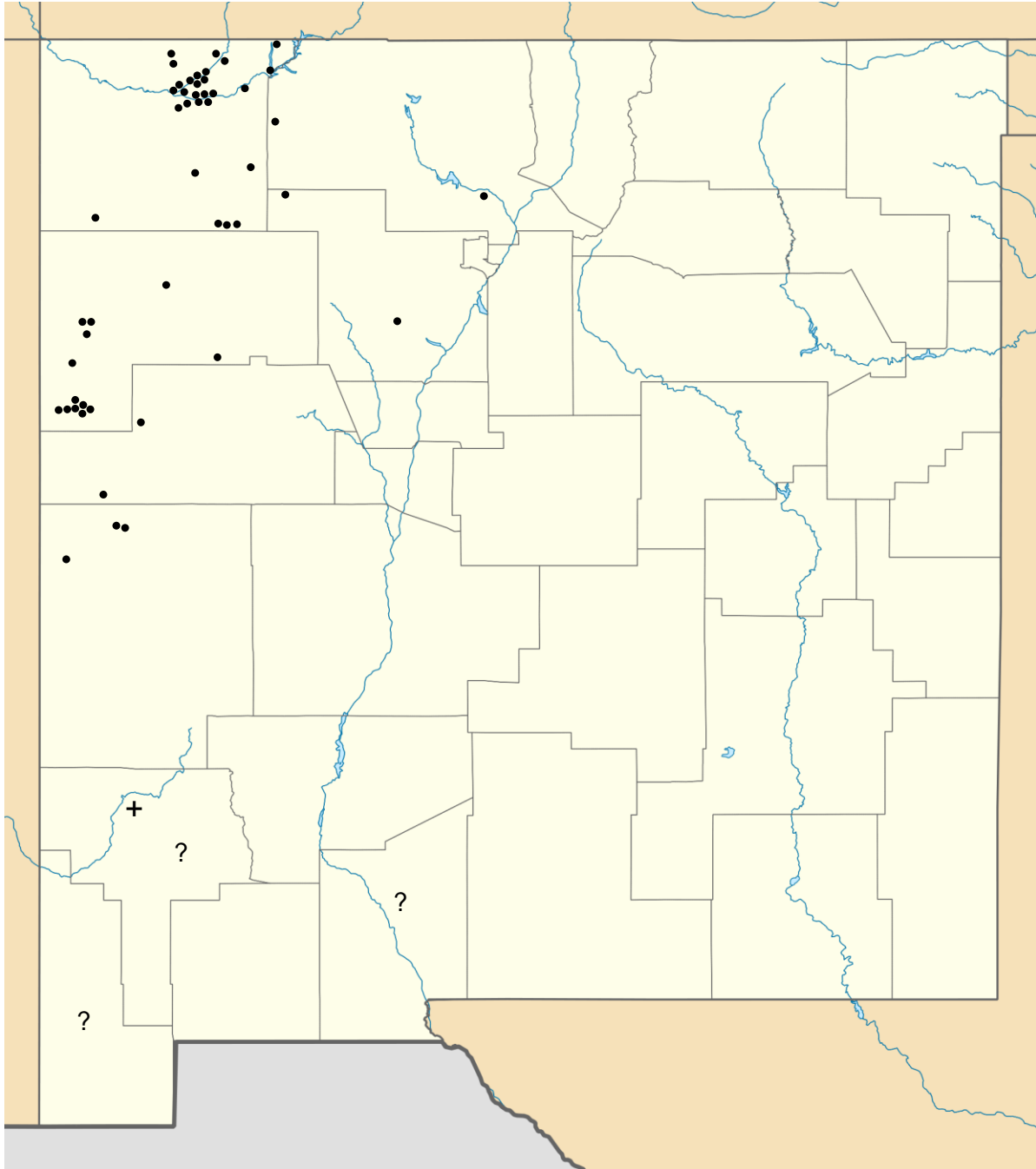


Figures 1 and 2. Ubiquitous *Cylindropuntia whipplei* var. *whipplei* along Interstate 40 in western Yavapai County, Arizona. These plants were much taller (~75 cm) and robust than the plant at Bear Creek.

Localities for vouchered specimens

In New Mexico, *Cylindropuntia whipplei* is well documented in both San Juan and McKinley Counties, plus a few specimens from just to the east in Rio Arriba and Sandoval counties and just to the south in Cibola and Catron counties. All those specimens are listed in Table 1 and on the map herein. Documented instances of *C. whipplei* in other New Mexico counties are equivocal (Table 2).

East of Sandoval County, Lyman Benson's (1982) distribution map shows *Cylindropuntia whipplei* in Santa Fe County. South of McKinley and Sandoval counties, Benson's map shows it in Cibola, Catron, Socorro, and Grant counties. Benson, however, provided scant documentation for these distribution points, listing only four herbarium records of *C. whipplei* for the entire state of New



Map 1. Herbarium specimens of *Cylindropuntia whipplei* in New Mexico

- = vouchered specimen of *Cylindropuntia whipplei*
- ? = vouchered specimen that has possibly erroneously been identified as *C. whipplei*
- + = new record of *C. whipplei* from Grant County

In order to show multiple herbarium specimens collected from well-collected sites, such as Farmington/Bloomfield/Aztec and from Zuni/Cheama Canyon, the points on the map are spaced slightly farther apart than if these were precisely at the collection coordinates. The blank New Mexico map with county borders and rivers is from Wikimedia Commons.

Mexico: Rio Arriba County; the town of Santa Fe; the town of Española, which straddles the border between Rio Arriba and Santa Fe counties; and Grant County. Benson's one record from the town of Santa Fe (*Pierce 2138*; UNM) clearly is of *C. x viridiflora* (Britton & Rose) F.M. Knuth, as annotated on the herbarium sheet by Nicole Trushell in 1984. I found only one other herbarium record for *C. whipplei* in Santa Fe County (Table 2), which is Benson's (1982) record from Española of a cultivated specimen in Santa Fe County (*V.O. Bailey s.n.*, US).

I found only two herbarium records for *Cylindropuntia whipplei* in Cibola County. These were from El Morro National Monument (*Rink 6070*, ASC) and Fence Lake (*Sivinski 3818*, UNM). Map 1 shows these and other vouchered records of *C. whipplei* in New Mexico.

Benson's (1982) record from Socorro County (1904, *Wooton 3008*; NMC) is actually from Catron County, at Puertocito, which is approximately ten kilometers (six miles) northwest of the town of Quemado. Until 1921, this portion of Catron County was part of Socorro County, which explains Benson's (1982) error regarding county. Another specimen was collected in 1994 from this same locale, El Portocito [note the slightly different spelling] (*Carter 1704*; UNM). There is one other documented locale for *C. whipplei* in Catron County, namely near Red Hill, 40 kilometers west-southwest of Quemado (*Castetter 1031*; UNM). Marc Baker and Michelle Cloud-Hughes also recorded an observation of *C. whipplei* from near Red Hill (*Baker 18443*) on SEINet, but without a herbarium specimen deposited.

I have found only three vouchered specimens of *Cylindropuntia whipplei* in northern New Mexico from east of the Continental Divide, i.e. in the Rio Grande drainage (Map 1). One of these specimens is from near Prewitt in southeastern McKinley County, just north of the Cibola County border. Another specimen is from El Rito, along the Chama River in southeastern Rio Arriba County. The third specimen is from along Highway 550 (formerly Highway 44, until it was widened) northwest of San Ysidro, which is in south-central Sandoval County. The specimen from El Rito (*Rusby 145*; US) is fragmentary, consisting of only one pericarpel/fruit. It was collected in 1880 when *Opuntia whipplei* and *O. spinosior* were considered conspecific (see the next section). However, Marc Baker and Michelle Cloud-Hughes examined this specimen and identified it as *C. whipplei*. The specimen near San Ysidro (*Castetter 1978*; UNM) is from a well-travelled stretch of highway connecting Bernalillo and Bloomfield. In the early and mid 1990s along this stretch of highway, the only cholla species that I noticed were *C. imbricata*, often in huge stands, and *Grusonia clavata* (Engelm.) H. Rob. and *C. whipplei* has never again been collected from this locality.

Historical descriptions of range

The original description of *Cylindropuntia whipplei* fairly accurately described its range — “From the elevated country about Zúñi to the head of Williams's river” (Engelmann & Bigelow 1856, p. 51). Williams's River is now known as the Bill Williams River (U.S. Geological Survey 1980). The species now is known to be common north of the line between Zuni and the Bill Williams River, i.e. in Yavapai, Mojave, Coconino, Navajo, and Apache counties in Arizona, as well as into far southern portions of Colorado, Utah, and Nevada.

Engelmann (1856, p. 307) also mentioned *Opuntia whipplei*, “from Zuni...south to the Gila”, but he was referring to *Opuntia whipplei* var. *spinosior* Engelmann, which is now often called *C. imbricata* (Haw.) F.M. Knuth subsp. *spinosior* (Engelm.) M.A. Baker, Cloud-H., & Majure [synonym *C. spinosior* (Engelm.) F.M. Knuth]. The original description of *Opuntia whipplei* (Engelmann & Bigelow 1856) distinguished the two varieties — var. *laevior* [as var. *laevior*] and var. *spinosior* — by var. *laevior* having shorter stems, shorter spines, and smaller seeds than var. *spinosior* and by var. *spinosior* being from south to the Gila whereas var. *laevior* being from between Zuni and the Bill Williams River. He was more specific with his description, writing that *C. whipplei* var. *laevior* “is from a few inches to 3-6 feet high; [while var. *spinosior*] forms small trees 8-10 feet high.” In the

USA, the current known range of subsp. *spinosior* is from the Gila River watershed south to the Mexican border (Benson 1982; Pinkava 2003) — hence Engelmann’s (1856) “south to the Gila” makes sense, although var. *spinosior* can also be found in northern parts of the Mimbres River watershed, in which *C. imbricata* subsp. *spinosior* starts to intergrade with *C. imbricata* subsp. *imbricata*. Engelmann (1859, p. 57) also wrote that the range of *Opuntia whipplei* var. *spinosior* was “From the Gila south to the Santa Cruz River and Tucson, and farther east.” The phrase “the Gila” was and sometimes still is used to designate a fairly large area, such as the Mogollon-Datil volcanic fields.

Until Toumey (1898), *Cylindropuntia imbricata* subsp. *spinosior* was known as a variety of *Cylindropuntia whipplei*, under the name *Opuntia whipplei* var. *spinosior* Engelmann & J.M. Bigelow. This is important because the one herbarium specimen of *C. whipplei* from Grant County (*Blumer 155*, US) was collected soon thereafter, almost certainly between 1901 and 1905, and thus it would have been easy at the turn of the 20th century to conflate *C. whipplei* and *C. imbricata* subsp. *spinosior*.

Southern New Mexico: Hidalgo, Doña Ana, and Grant counties

In this section, I review three vouchered specimens from southern New Mexico that purportedly are *Cylindropuntia whipplei*. Because none of these specimens are yet digitized and because of the covid-19 pandemic, I have not yet seen photos nor scans of these three specimens.

There is a herbarium specimen labeled *Cylindropuntia whipplei* from the western edge of the San Andres Mountains on the Jornada Long-Term Ecological Research (LTER) site, formerly called the Jornada Ecological Range, in Doña Ana County (12 Dec 1934, *Engholm 799*, RM). I have not yet seen this specimen but it probably is either a small specimen of the locally common *C. imbricata* subsp. *imbricata* or possibly a rare hybrid of *C. imbricata* x *leptocaulis*. The Jornada LTER is an extensively studied research site from which there have been no other records or reports of *C. whipplei*, but *C. imbricata* subsp. *imbricata* and *C. leptocaulis* (DC.) F.M. Knuth are ubiquitous on the Jornada. As a graduate student in 1995-1996, I briefly studied on the Jornada but do not recall seeing *C. whipplei*. The specimen from the Jornada is odd in being in the Rio Grande drainage, i.e. east of the Continental Divide, as were specimens from near Prewitt in McKinley County, El Rito in Rio Arriba County, and near San Ysidro in Sandoval County.

Similarly, a collection identified as *Cylindropuntia whipplei* from just east-northeast of Animas, in central Hidalgo County (1985, *Worthington 13791*, UTEP) may be a small specimen of *C. imbricata* subsp. *spinosior* or possibly a hybrid of *C. imbricata* subsp. *spinosior* x *leptocaulis*. By contrast to the specimen from the Jornada, the Animas specimen is a more recent collection by someone who is familiar with both *C. imbricata* and *C. leptocaulis*.

Benson’s (1982) distribution map shows two localities for *Cylindropuntia whipplei* in Grant County: Fort Bayard and a locale near Sherman, which is between San Lorenzo and Faywood. Benson’s documentation only lists one specimen from Grant County, the specimen from Fort Bayard, the only specimen that I have found from Grant County. Nonetheless, while driving State Road 61 between San Lorenzo and Faywood and City of Rocks State Park, the only chollas I saw were *C. imbricata* (possibly subsp. *spinosior*) and a probably introduced *Grusonia emoryi* (Engelm.) Pinkava at City of Rocks.

There is a boxed specimen and label for *Blumer 155* of *Cylindropuntia whipplei* from Fort Bayard in Grant County. This collection was almost certainly made by J.C. Blumer during a summer between 1901 and 1905, when he was a seasonal summer worker for the U.S. Forest Service, partly in New Mexico, while an undergraduate at Iowa State College (Bowers 1983). And, as mentioned

above, *Blumer 155* was collected just after Toumey (1898) first published that *C. spinosior* should no longer be considered a variety of *C. whipplei*.

On 11 March 2020, I visited Fort Bayard but did not find *Cylindropuntia whipplei*, despite this locale being flat with loose, deep, fine-grained soils, which is typical for *C. whipplei* in much of its range. The only cacti I found at Fort Bayard were numerous stunted specimens of *C. imbricata* subsp. *spinosior* and a few scraggly specimens of *Opuntia pottsii* Salm-Dyck. Fort Bayard is readily accessible and has been since it was established in the late 1860s, but no specimens of *C. whipplei* have ever been collected there, either before or after *Blumer 155*. I have found no other herbarium records of *C. whipplei* var. *whipplei* from Grant County, either vouchered or unvouchered. Thus, it is likely that no specimens of *C. whipplei* exist from Grant County. And, if the putative locales of *C. whipplei* from Hidalgo and Doña Ana counties are also equivocal, then the documented range of *C. whipplei* in New Mexico extends no farther south than northern portions of Catron County.

New locality near Gila in Grant County

With that background, I was surprised to find a native plant of *Cylindropuntia whipplei* var. *whipplei* near the Gila River in Grant County, approximately 8 km east of the town of Gila. By contrast, *C. imbricata* subsp. *spinosior* was abundant at this locality. The *C. whipplei* near Gila appeared to consist of a single clone growing 12 meters from Bear Creek (Figs. 3, 4), a major tributary of the Gila River that flows from near Piños Altos to the town of Cliff.



Figures 3 and 4. Clump of *C. whipplei* var. *whipplei* along Bear Creek, 8 km east of Gila, New Mex.



Figure 5. Underground horizontal woody shoot of *C. whipplei* along Bear Creek, with upright green shoots and vertical roots. The herbarium sheet was made from this specimen.



Figure 6. Skeletons of *C. whipplei* along Bear Creek, surrounding the main clump.

The clonal nature of this plant was suggested by several nearby plants connected to the main clump by prone shoots growing just below the soil surface. Sometimes these prone shoots looked like dead skeletons but were still alive (Fig. 5). Other times, both the prone shoots and the vertical aboveground shoots arising from them were clearly dead (Fig. 6). Despite extensive searches, I found no other nearby plants of *Cylindropuntia whipplei*.

The main clump of this plant was 18 cm tall and 43 cm in diameter. The entire diameter of the clump, including underground attached satellite shoots, was approximately 1 m. This plant had cladodes to 15 cm long, but most cladodes were much shorter. Cladodes were dark green, with transverse creasing in winter. Upright cladodes were 5-8 mm in diameter (Figs. 7, 8), but some older cladodes lying horizontally just below the soil surface with thick periderms were up to 25 mm in diameter (Figs. 5, 9, 10). Roots were sparsely branched, mostly vertical, and about 2-4 mm in diameter. I saw no shallow horizontally spreading roots just below the soil surface, as occurs in many cacti. Tubercles were raised and longer than wide, but tubercles were only obvious near the ‘canopy’ of this plant, which was where spines were present. Tubercles were virtually non-existent on lower parts of cladodes, which lacked spines, so that lower portions of cladodes appeared perfectly cylindrical. There was at most one spine per areole. Spines were only found at the ‘canopy’ of the plant, which meant the top centimeter, on areoles residing on raised tubercles. Some areoles residing on raised tubercles lacked spines or had very short spines that were under 4 mm long. The longer spines at the ‘canopy’ of this plant were 18-23 mm long, with white sheaths. Areoles were circular, 1.0-1.5 mm in diameter, with white glochids.



Figures 7 and 8. Close-up of terminal shoots (‘canopy’) of *C. whipplei* along Bear Creek.



Figures 9 and 10. The herbarium sheet from Bear Creek was made from this specimen of *C. whipplei*.

This plant was growing just south of a small (1.2 m tall) *Prosopis glandulosa* (mesquite), with a medium-sized (3 m tall) *Juniperus deppeana* (alligator juniper) overtopping the mesquite. This was a fairly shaded site. The substrate was composed of mesquite leaflets and juniper leaves above a layer of sand and gravel deposited by rare vernal flooding on nearby Bear Creek and rolling down the nearby hill that was 200 m tall. Other plants within 100 meters included *Platanus wrightii*, *Populus fremontii*, *Salix exigua*, *Quercus* sp., *Senegalia greggii* [*Acacia greggii*], *Pinus edulis*, *Yucca elata*, *Cylindropuntia imbricata* subsp. *spinosior*, *Echinocereus fendleri*, *Mammillaria wrightii*, *Opuntia macrocentra*, and *Opuntia phaeacantha*.

On 4 March 2020, I collected a specimen (Figs. 5, 9, 10) for the Dale A. Zimmerman Herbarium (SNM), from which the curator, William Norris, kindly prepared a herbarium sheet. This locality for this specimen is Grant County, 8 km E of Gila, 150 Double E Ranch Road, along Bear Creek, (32° 58' 33" N; -108° 30' 47" W [32.975833° N; -108.513056° W]), elev. 1458 meters. This locality is over 160 km (100 miles) from the vouchered specimens of *Cylindropuntia whipplei* from northern Catron County.

After showing this specimen of *Cylindropuntia whipplei* along Bear Creek to the property owners, one of them (Debbie Eggleston) commented that they have seen plenty of these plants before on their adjacent cattle ranch. She has had to remove them from their horses' feet. She also thought nothing of these other plants, believing that they were merely juvenile specimens of the ubiquitous *C. imbricata* subsp. *spinosior*. She was somewhat justified in this assessment insofar as young seedlings or even the first shoots sprouting from small fallen cladodes of *C. imbricata* subsp. *spinosior* have new shoots that superficially resemble those of *C. whipplei*. But entire mature plants of *C. whipplei* do not look like *C. imbricata* subsp. *spinosior*. Their skeletons also look different (Fig. 6).

I also asked the owners if it was possible that this lone individual of *Cylindropuntia whipplei* along Bear Creek could have arrived via a cladode being washed down the creek during vernal flooding. The other owner (Alan Eggleston) said this was highly unlikely because the hundred-year flood line was at least five meters closer to the creek, pointing to a line of different looking soil created by cottonwood and sycamore leaves that had been washed downstream. The winter of 2019/2020 had been quite wet, with decent snowpack in the Mogollon Mountains, and yet Bear Creek was still far from this *C. whipplei*. Of course, such a detached cladode could have traveled downstream in a spring flood and then later been transported by animal the remaining 5-10 m to its current location. Regardless, it would be interesting to find whether *C. whipplei* is present upstream from this locale on Bear Creek.

Conclusion

Cylindropuntia whipplei seems to be extremely rare or non-existent in New Mexico other than in the northwest quarter of the state. In New Mexico, *C. whipplei* is primarily found in the northwest quarter of the state, in the watersheds of the San Juan, Rio Puerco of the West, and Zuni Rivers, all of which are tributaries of the Little Colorado River. There are a few specimens of *C. whipplei* from northern Catron County, the one specimen described herein from east of the town of Gila, and a few specimens on the Atlantic side of the Continental Divide along western portions of the Rio Grande watershed, such as the specimens from Prewitt (McKinley County), San Ysidro (Sandoval County), and El Rito (Rio Arriba County).

ACKNOWLEDGEMENTS

Thanks to Marc Baker for verifying my original identification of the specimen from Bear Creek, Bill Norris at Western New Mexico University for preparing the herbarium specimen, and Debbie and Alan Eggleston for permission to collect a specimen from their property. The following herbarium curators have been extraordinarily helpful: Robert 'Bort' Edwards (US), Mare Nazaire (RSA-POM), Debra Trock (CAS), Phil Tonne (UNM), and Sara Fuentes-Soriano (NMC).

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Table 1. Herbarium records of *Cylindropuntia whipplei* from New Mexico

County	Collection #	Date	Location	Lat.	Long.	Elev.	Herbaria
Catron							
	<i>Wooton 3008</i>	1904-05-25	Puertocito, NW Quemado †	34° 23'	108° 34'	1951	NMC, US
	<i>Carter 1704</i>	1994-08-01	El Porticito, NW Quemado	34° 23'	108° 34'	1951	UNM
	<i>Castetter 1031</i>	1962-06-20	Red Hill	34° 13'	108° 53'	2133	UNM
Cibola							
	<i>Rink 6070</i>	2007-06-04	El Morro National Mon.	35° 02'	108° 21'	2190	ASC, UNM
	<i>Sivinski 3818</i>	1997-06-19	Canyon Springs, Fence Lake	34° 45'	108° 51'	2014	UNM
Rio Arriba							
	<i>Rusby 145</i>	1880-08-01	El Rito	36° 20'	106° 11'	2102	US
	<i>Holmes 81</i>	1995-04-09	Largo Canyon, Crow Cyn	36° 23'	107° 31'	1981	SJNM
Sandoval							
	<i>Heil 8715</i>	1995-04-05	Counselor	36° 04'	107° 26'	2141	SJNM
	<i>Castetter 1978</i>	1963-06-23	9 km NW of San Ysidro	35° 34'	106° 52'	1725	UNM
McKinley							
	<i>Bigelow s.n.</i>	1853-11-22	Zuni	35° 05'	108° 47'	1951	RSA, POM, MO
	<i>Pierce 1084</i>	1962-07-18	Zuni	35° 05'	108° 44'	1950	UNM
	<i>Camazine 115</i>	2017-10-18	Zuni	35° 04'	108° 51'	1917	COLO

	<i>Tierney s.n.</i>	1981-06-14	Zuni, 7 km E of Zuni	35° 05'	108° 43'	2005	NMC
	<i>Castetter 375</i>	1954-08-07	9 km NE of Zuni	35° 14'	108° 46'	2200	UNM
	<i>Baker 16670.2 *</i>	2008-03-11	Cheama Canyon	35° 04'	108° 46'	2040	ASU
	<i>Baker 17829.3</i>	2013-10-26	Cheama Canyon	35° 04'	108° 43'	2050	ASU
	<i>Baker 13815</i>	2000-06-06	Cheama Canyon, east fork	35° 04'	108° 71'	2055	SD
	<i>Peabody 1054</i>	1977-05-17	Two Wells	35° 20'	108° 48'	2225	BRY
	<i>Heil 9948</i>	1996-05-13	Standing Rock	35° 48'	108° 20'	1966	SJNM, COLO
	<i>Toumey s.n.</i>	1896-10-06	Gallup	35° 32'	108° 45'	1987	US
	<i>Eastwood 5618</i>	1916-06-14	Gallup	35° 32'	108° 45'	1987	CAS
	<i>Pierce 1084</i>	1962-07-18	10 km S of Gallup	35° 05'	108° 43'	2133	UNM
	<i>Baker 11732.1</i>	1995-04-07	2 km SW of Prewitt	35° 22'	108° 03'	2134	US, UTEP, ASU
San Juan							
	<i>Standley 7013</i>	1911-07-18	Farmington	36° 40'	108° 12'	1600	US
	<i>Standley 7128</i>	1911-07-20	Farmington	36° 40'	108° 12'	1600	US
	<i>Brass 14352</i>	1940-06-17	Farmington	36° 40'	108° 12'	1524	GH
	<i>Faulkner 143</i>	1977-06-22	6 miles S of Farmington	36° 35'	108° 12'	1890	FLD
	<i>Baker 11730</i>	1995-04-06	SE of Farmington	36° 46'	108° 07'	1838	UCR
	<i>Standley 8024</i>	1911-08-16	Cedar Hills	36° 58'	107° 52'	1900	US
	<i>Baker 13819</i>	2000-06-09	2 km SE of Cedar Hills	36° 55'	107° 53'	1890	SD
	<i>Pierce 1154</i>	1962-08-16	3 km S of La Boca, CO	36° 59'	107° 36'	1981	UNM
	<i>Harris 3432</i>	1958-08-25	Navajo Lake (underwater)	36° 50'	107° 37'	1820	UNM
	<i>unknown</i>	1983-03-15	Turley	36° 44'	107° 47'	1900	UTEP
	<i>Spellenberg 6560</i>	1982-06-04	4 miles N of La Plata	36° 59'	108° 11'	1880	NMC
	<i>Pierce 1028</i>	1962-06-14	S of La Plata	36° 55'	108° 12'	1770	UNM
	<i>Heil 4080</i>	1972-01-08	1 mile W of Nageezi	36° 16'	107° 50'	2090	UNM
	<i>Hibben 1983</i>	1963-06	Chaco Canyon	36° 04'	107° 58'	1981	UNM
	<i>Kass 1488</i>	1983-10-16	Chaco Culture NHP	36° 04'	107° 58'	1981	BRY
	<i>Koehler 17</i>	1980-07-08	4 km E Chaco Culture NHP	36° 03'	107° 48'	1950	UNM
	<i>Spellenberg 4122</i>	1976-06-09	Black Lake, 15 mi SE Bisti	36° 11'	108° 04'	1890	NMC
	<i>Clark 15347</i>	1950-06-01	E Aztec, Animas River	36° 50'	108° 00'	1750	UNM
	<i>Castetter 403</i>	1980-07-08	Aztec	36° 50'	108° 00'	1750	UNM
	<i>Rink 5053</i>	2006-08-27	Aztec Ruins National Mon.	36° 50'	108° 00'	1750	ASC, UNM
	<i>Rink 5976</i>	2007-05-26	Aztec Ruins Natl. Mon.	36° 50'	108° 00'	1770	ASC, UNM
	<i>Reeves 2186 **</i>	1963-10-18	NE Bloomfield	36° 42'	108° 02'	1646	UNM
	<i>Reeves 3196</i>	1966-03-08	NE Bloomfield	36° 42'	108° 02'	1646	UNM
	<i>Reeves 2217</i>	1963-10-10	Bloomfield	36° 42'	108° 02'	1646	UNM
	<i>Pierce 1492</i>	1963-01-31	Bloomfield	36° 43'	107° 59'	1646	UNM
	<i>Bohrer 1600</i>	1972-06-30	Bloomfield, N Salmon Ruin	36° 42'	108° 02'	1646	RSA
	<i>Pierce 3167</i>	1965-10-11	5 miles W of Naschitti	36° 03'	108° 49'	2300	UNM
	<i>Baker 478</i>	1898-05-02	Aztec	36° 50'	108° 00'	1676	RM, NMC, MO, GH, NY

* On that same day, Marc Baker and Rafael Rouston collected three additional specimens of *Cylindropuntia whipplei* from the same locale: *Baker 16670.4* (ASU), *Baker 16670.7* (ASU), *Baker 16670.9* (US).

** On that same day, Bob Reeves collected an additional specimen of *C. whipplei* from the same locale: *Reeves 2187* (UNM).

† Portocito and Quemado were in Socorro County until 1921 when Catron County was split off from Socorro County.

Table 2. Questionable herbarium records and one new record of *C/ whipplei* from New Mexico

County	Collection #	Date	Location	Lat.	Long.	Elev.	Herb.
Santa Fe	<i>Bailey s.n.</i>	1904-10-19	Española - cultivated	36° 00'	106° 04'	1706	US
Doña Ana	<i>Engholm 799</i>	1934-12-12	Jornada LTER	36° 46'	106° 35'	1524	RM
Hidalgo	<i>Worthington 13791</i>	1985-10-12	1.1 km ENE of Animas	31° 57'	108° 47'	1340	UTEP
Grant	<i>Blumer 155</i>	*	Fort Bayard	32° 48'	108° 09'	1867	US *
Grant	<i>Gorelick s.n.</i>	2020-03-04	Gila, 8 km E of	32° 59'	108° 31'	1458	SNM §

* Robert 'Bort' Edwards at the Smithsonian has promised to provide me with a photo of the boxed specimen and label for *Blumer 155* from Fort Bayard once he is cleared to return to the workplace following the covid-19 pandemic quarantines. No herbarium sheet exists for this specimen, which is why it has never been digitized. Blumer only worked in New Mexico during summers from 1901-1905.

§ Bill Norris will complete this herbarium sheet following the covid-19 pandemic quarantines, based on a specimen (Figs 5, 9, 10) that I collected on 4 March 2020 and provided to him on 10 March 2020.