

Electronic supplement to:

A new endemic species of *Mammillaria* (Cactaceae) from San Luis Potosí, Mexico

Pedro González-Zamora, David Aquino, Jonathan Mohl & Daniel Sánchez

Electronic supplement to: González-Zamora P., Aquino D., Mohl J. & Sánchez D. 2022: A new endemic species of *Mammillaria* (Cactaceae) from San Luis Potosí, Mexico. – Willdenowia 52: 359–372.

<https://doi.org/10.3372/wi.52.52305>

Table S1. Descriptive statistics of the compared populations of *Mammillaria* ser. *Stylothelae* (for acronyms see Table 1 and 2).

LSTEM						DSTEM					
Pop. acronym	N	Min	Max	Mean	SD	Pop. acronym	N	Min	Max	Mean	SD
sp	10	22	40	31.48	5.89	sp	10	15	26	19.75	3.64
bocasana_SLP	10	21	69	38.89	14.98	bocasana_SLP	10	34	62	42.54	9.34
bocasana_SLP2	10	26.32	60.1	45.66	10.73	bocasana_SLP2	10	28.35	50.78	41.01	6.01
c_crinita_HGO	10	13.2	32	26.05	5.34	c_crinita_HGO	10	20.2	38.4	30.98	5.39
c_crinita_HGO2	10	15.3	34.1	25.11	5.82	c_crinita_HGO2	10	20.9	35	26.66	3.92
c_crinita_GTO	10	12.8	38.5	22.50	6.89	c_crinita_GTO	10	15	32.8	21.48	4.58
c_crinita_QRO	10	19.1	33.6	25.70	4.96	c_crinita_QRO	10	22.9	39.1	30.22	4.86
c_crinita_QRO2	10	13	32	21.70	6.16	c_crinita_QRO2	10	21	38	28.45	4.95
c_leucantha	10	19	32	27.85	3.52	c_leucantha	10	36	52	42.24	4.83
c_wildii	10	18.1	40.1	27.24	5.55	c_wildii	10	19.3	38.6	24.34	5.35
Nana	10	14	34	20.16	5.22	nana	10	21	44	32.24	6.27
schwarzii	10	30	48	38.38	4.92	schwarzii	10	24	39	32.18	5.15
NCENSP						LCENSP					
Pop. acronym	N	Min	Max	Mean	SD	Pop. acronym	N	Min	Max	Mean	SD
sp	99	3	8	5.02	1.10	sp	99	3.7	9.4	5.801	1.33
bocasana_SLP	99	1	6	3.57	1.06	bocasana_SLP	99	6	14	9.232	1.58
bocasana_SLP2	88	1	4	2.63	0.81	bocasana_SLP2	88	6.82	23.4	13.502	3.83
c_crinita_HGO	81	1	4	3.44	0.79	c_crinita_HGO	81	3.5	7.8	5.578	1.07
c_crinita_HGO2	89	3	4	3.71	0.45	c_crinita_HGO2	89	5	12	8.417	1.51
c_crinita_GTO	100	1	4	2.00	0.77	c_crinita_GTO	100	2.9	9	5.354	1.46
c_crinita_QRO	50	3	4	3.88	0.33	c_crinita_QRO	50	3.6	7.7	5.208	1.07
c_crinita_QRO2	95	2	4	3.21	0.72	c_crinita_QRO2	95	6	12	8.811	1.39
c_leucantha	81	1	5	3.79	0.68	c_leucantha	81	6	13	9.531	1.41
c_wildii	92	3	5	3.28	0.47	c_wildii	92	2.86	8.35	5.477	1.23
nana	79	1	2	1.10	0.30	nana	79	3	9	6.905	1.48
schwarzii	76	5	9	7.18	1.17	schwarzii	76	4.5	9.5	7.072	0.98

(continued on next page)

Table S1 (continued from previous page).

NRADSP						LRADSP					
Pop. acronym	N	Min	Max	Mean	SD	Pop. acronym	N	Min	Max	Mean	SD
sp	99	17	32	24.49	3.47	sp	99	4	9.2	6.69	1.33
bocasana_SLP	99	29	42	36.02	2.90	bocasana_SLP	99	6	17	12.72	1.79
bocasana_SLP2	88	17	25	21.79	2.06	bocasana_SLP2	88	3.91	8.04	5.74	1.17
c_crinita_HGO	81	16	27	20.69	2.17	c_crinita_HGO	81	2.2	6.9	4.95	0.89
c_crinita_HGO2	89	14	27	21.16	2.68	c_crinita_HGO2	89	6.1	12	8.88	1.14
c_crinita_GTO	100	10	20	14.14	2.09	c_crinita_GTO	100	3.2	9.9	5.21	1.03
c_crinita_QRO	50	16	24	19.68	2.05	c_crinita_QRO	50	2.5	6.5	4.55	0.81
c_crinita_QRO2	95	19	30	23.18	2.40	c_crinita_QRO2	95	3	13	8.15	2.15
c_leucantha	81	14	21	17.17	1.57	c_leucantha	81	4	9	6.58	1.13
c_wildii	92	10	15	12.84	1.33	c_wildii	92	3.49	8.5	5.79	1.06
nana	79	23	32	28.03	1.94	nana	79	3	8	5.58	1.25
schwarzii	76	33	44	38.98	2.61	schwarzii	76	6	15	9.38	2.05
LARE						WARE					
Pop. acronym	N	Min	Max	Mean	SD	Pop. acronym	N	Min	Max	Mean	SD
sp	99	0.59	0.94	0.76	0.06	sp	99	0.61	1.04	0.76	0.07
bocasana_SLP	99	0.71	1.69	1.03	0.17	bocasana_SLP	99	0.7	1.69	0.98	0.16
bocasana_SLP2	88	1.03	2.1	1.33	0.27	bocasana_SLP2	88	0.74	2	1.09	0.28
c_crinita_HGO	81	0.52	1.71	0.94	0.22	c_crinita_HGO	81	0.44	1.52	0.87	0.20
c_crinita_HGO2	89	0.54	0.99	0.75	0.10	c_crinita_HGO2	89	0.44	0.91	0.70	0.10
c_crinita_GTO	100	0.53	1.4	1.01	0.17	c_crinita_GTO	100	0.42	1.34	0.88	0.17
c_crinita_QRO	50	0.59	1.36	0.86	0.17	c_crinita_QRO	50	0.61	1.12	0.78	0.14
c_crinita_QRO2	95	0.49	0.89	0.71	0.08	c_crinita_QRO2	95	0.44	0.9	0.65	0.08
c_leucantha	81	0.57	1.4	0.98	0.20	c_leucantha	81	0.52	1.37	0.93	0.20
c_wildii	92	0.72	1.55	1.07	0.18	c_wildii	92	0.67	1.71	1.08	0.22
nana	79	0.79	1.61	1.26	0.20	nana	79	0.55	1.34	0.93	0.18
schwarzii	76	1.03	1.86	1.36	0.19	schwarzii	76	1.07	1.81	1.39	0.19

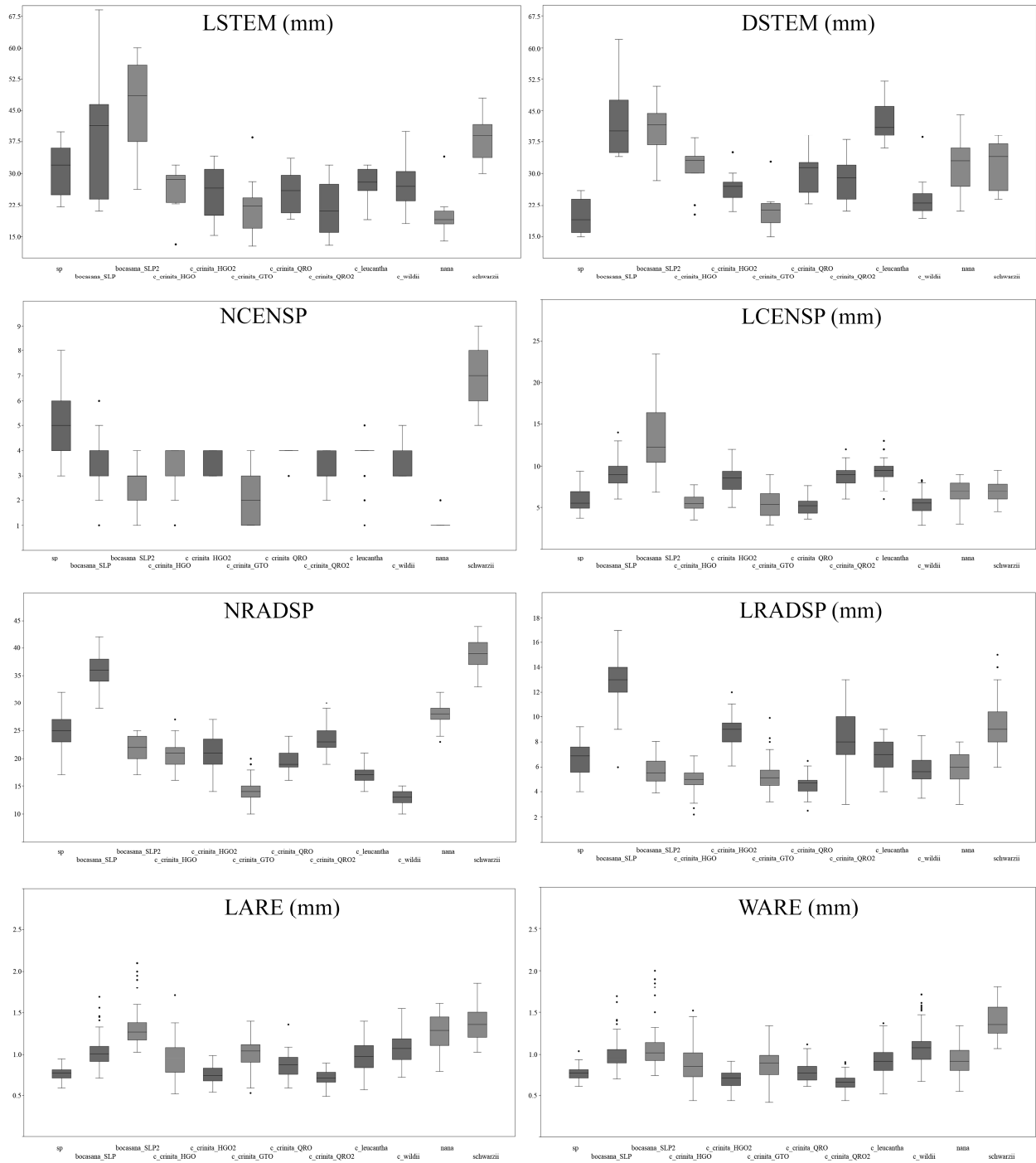


Fig. S1. Boxplots of the variation of the eight vegetative characters by population of *Mammillaria* ser. *Stylothelae* included in the analysis (Table 2). The order of each population is as follows (left to right): sp, bocasana_SLP, bocasana_SLP2, c_crinita_HGO, c_crinita_HGO2, c_crinita_GTO, c_crinita_QRO, c_crinita_QRO2, c_leucantha, c_wildii, nana, schwarzii (for population acronyms see Table 1).

Table S2. Descriptive statistics of the compared taxa of *Mammillaria* ser. *Stylothelae* (for acronyms see Table 1 and 2).

LSTEM						DSTEM					
Sp. acronym	N	Min	Max	Mean	SD	Sp. acronym	N	Min	Max	Mean	SD
sp	10	22	40	31.48	5.89	sp	10	15	26	19.758	3.64
bocasana	20	21	69	42.08	13.55	bocasana	20	28.35	62	41.823	7.96
crinita	40	12.8	38.5	23.84	6.28	crinita	40	15	39.1	26.899	5.87
c_leucantha	10	19	32	27.85	3.52	c_leucantha	10	36	52	42.247	4.83
c_wildii	10	18.1	40.1	27.24	5.55	c_wildii	10	19.3	38.6	24.343	5.35
nana	10	14	34	20.16	5.22	nana	10	21	44	32.241	6.27
schwarzii	10	30	48	38.38	4.92	schwarzii	10	24	39	32.184	5.15
NCENSP						LCENSP					
Sp. acronym	N	Min	Max	Mean	SD	Sp. acronym	N	Min	Max	Mean	SD
sp	99	3	8	5.02	1.10	sp	99	3.7	9.4	5.801	1.33
bocasana	187	1	6	3.13	1.06	bocasana	187	6	23.4	11.242	3.57
crinita	415	1	4	3.10	0.96	crinita	415	2.9	12	6.932	2.10
c_leucantha	81	1	5	3.79	0.68	c_leucantha	81	6	13	9.531	1.41
c_wildii	92	3	5	3.28	0.47	c_wildii	92	2.86	8.35	5.477	1.23
nana	79	1	2	1.10	0.30	nana	79	3	9	6.905	1.48
schwarzii	76	5	9	7.18	1.17	schwarzii	76	4.5	9.5	7.072	0.98
NRADSP						LRADSP					
Sp. acronym	N	Min	Max	Mean	SD	Sp. acronym	N	Min	Max	Mean	SD
sp	99	17	32	24.49	3.47	sp	99	4	9.2	6.692	1.33
bocasana	187	17	42	29.32	7.55	bocasana	187	3.91	17	9.437	3.81
crinita	415	10	30	19.66	4.12	crinita	415	2.2	13	6.671	2.23
c_leucantha	81	14	21	17.17	1.57	c_leucantha	81	4	9	6.580	1.13
c_wildii	92	10	15	12.84	1.33	c_wildii	92	3.49	8.5	5.792	1.06
nana	79	23	32	28.03	1.94	nana	79	3	8	5.589	1.25
schwarzii	76	33	44	38.98	2.61	schwarzii	76	6	15	9.382	2.05
LARE						WARE					
Sp. acronym	N	Min	Max	Mean	SD	Sp. acronym	N	Min	Max	Mean	SD
sp	99	0.59	0.94	0.76	0.06	sp	99	0.61	1.04	0.76	0.07
bocasana	187	0.71	2.1	1.17	0.26	bocasana	187	0.7	2	1.03	0.23
crinita	415	0.49	1.71	0.86	0.19	crinita	415	0.42	1.52	0.78	0.17
c_leucantha	81	0.57	1.4	0.98	0.20	c_leucantha	81	0.52	1.37	0.93	0.20
c_wildii	92	0.72	1.55	1.07	0.18	c_wildii	92	0.67	1.71	1.08	0.22
nana	79	0.79	1.61	1.26	0.20	nana	79	0.55	1.34	0.93	0.18
schwarzii	76	1.03	1.86	1.36	0.19	schwarzii	76	1.07	1.81	1.39	0.19

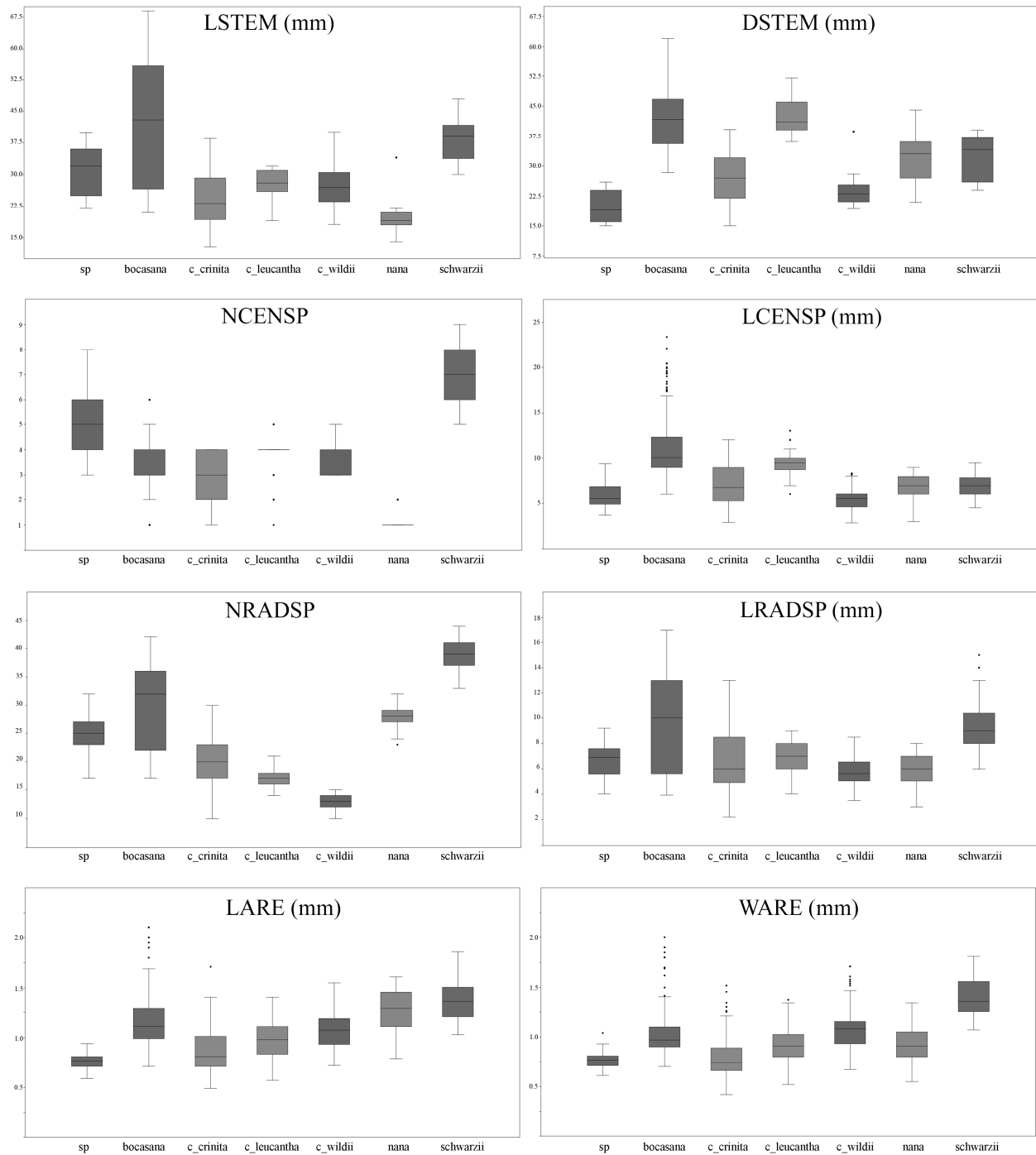


Fig. S2. Boxplots of the variation of the eight vegetative characters by taxon of *Mammillaria* ser. *Stylothelae* included in the analysis (Table 2). The order of taxa (left to right) is as follows: sp, bocasana, c_crinita, c_leucantha, c_wildii, nana, schwarzii (for species acronyms see Table 1).

Table S3. Confusion matrix of the linear discriminant analysis by population (for population acronyms see Table 1).

	sp	bocasana_SLP	bocasana_SLP2	c_crinita_HGO	c_crinita_HGO2	c_crinita_GTO	c_crinita_QRO	c_crinita_QRO2	c_leucantha	c_wildii	nana	schwarzii	Total
sp	99	0	0	0	0	0	0	0	0	0	0	0	99
bocasana_SLP	0	99	0	0	0	0	0	0	0	0	0	0	99
bocasana_SLP2	0	0	86	0	0	1	0	0	0	0	1	0	88
c_crinita_HGO	0	0	0	47	0	3	29	1	0	0	1	0	81
c_crinita_HGO2	0	0	0	0	72	0	0	16	1	0	0	0	89
c_crinita_GTO	0	0	0	3	0	78	0	0	0	18	1	0	100
c_crinita_QRO	0	0	0	16	0	0	34	0	0	0	0	0	50
c_crinita_QRO2	0	1	0	4	12	0	2	76	0	0	0	0	95
c_leucantha	0	0	0	0	0	0	0	0	81	0	0	0	81
c_wildii	0	0	0	0	0	1	0	0	0	91	0	0	92
nana	0	0	0	0	0	0	0	0	0	0	79	0	79
schwarzii	0	0	0	0	0	0	0	0	0	0	0	76	76
Total	99	100	86	70	84	83	65	93	82	109	82	76	1029

Table S4. Confusion matrix of the linear discriminant analysis by taxon (for species acronyms see Table 1).

	sp	bocasana	crinita	c_leucantha	c_wildii	nana	schwarzii	Total
sp	99	0	0	0	0	0	0	99
bocasana	0	176	5	0	0	6	0	187
crinita	9	6	349	4	40	7	0	415
c_leucantha	0	0	0	81	0	0	0	81
c_wildii	0	0	0	0	92	0	0	92
nana	0	0	0	0	0	79	0	79
schwarzii	0	0	0	0	0	0	76	76
Total	108	182	354	85	132	92	76	1029