

A NEW *JOHNSTONELLA* SPECIES (BORAGINACEAE) FROM COAHUILA

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ABSTRACT

Johnstonella sheylae G.S. Hinton, **sp. nov.**, is described from two collections from west-central Coahuila. Morphology and ecology indicate that it is most closely related to *J. geohintonii* from northwestern Nuevo León.

Study of collections previously identified as *Johnstonella geohintonii* (B.L. Turner) Simpson & Kelly (described as *Cryptantha geohintonii* by Turner 2008) shows that two morpho-geographic population systems exist. The type of *J. geohintonii* is from an area of gypsum outcrops northwest of Monterey (Mpio. Mina), Nuevo León, and additional collections have been made from the same area. Two collections, however, are from west-central Coahuila, also from gypsum substrate but long-separated from the typical populations (Fig. 1) — these produce much larger mericarps and are recognized here as a distinct species.

Species of *Cryptantha* characterized by plants with a tendency toward perennial duration, chasmogamous flowers, and ovate mericarps with white-tuberculate surfaces are in a separate evolutionary clade from typical *Cryptantha* (Simpson et al. 2017, 2019; Simpson 2007 onwards) and have been treated as the genus *Johnstonella* Brand.

Johnstonella sheylae G.S. Hinton, sp. nov. **TYPE: MEXICO. Coahuila.** Mpio. Francisco I. Madero: E side of Sierra de Tlahualilo, gypseous llano, 1105 m, 19 Apr 2015, *Hinton et al.* 29563 (holotype: TEX; isotype: GBH).

Similar to *Johnstonella geohintonii* and *J. gypsites* in its gypseous habitat and perennial duration. Similar to *J. geohintonii* in its corollas ca. 2 mm long with flaring lobes and triangular-ovate nutlets with sharply pointed tubercles and without distinct lateral ridges; distinct from *J. geohintonii* in its larger mericarps (1.2–1.4 mm long vs. 0.7–1 mm long).

Perennial herbs from a thickened, woody taproot, much branched from the base and forming somewhat rounded plants 14–21 cm high. **Stems** hirsute-villous with stiff, white, spreading hairs mixed with antrorsely ascending-appressed hairs. **Leaves** (midstem) lanceolate, sessile, 6–9 mm long, 0.7–1.2 mm wide, villous with stiffly spreading hairs. **Flowering spikes** (2.3–)4–6(–8.2) cm long; bracts lanceolate, 4–7 mm long; flowers sessile to subsessile. **Sepals** lanceolate, 2.8–3.2 mm long. **Corollas** white, ca. 2 mm long, lobes erect, flaring, ca. 0.6 mm long. **Mericarps** homomorphous, triangular-ovate in outline, without distinct lateral ridges, 1.2–1.4 mm long, 1.1–1.2 mm wide, surface with white, sharply pointed warts; scar narrowly triangular with slightly elevated margins.

The type was collected by the first author and his son Geoffrey; the species is named for Geoffrey's young daughter Sheyla.

Additional collection. Coahuila. Mpio. Ocampo: Sierra Mojada, llano E of El Cinco, 20 April 2015, *Hinton et al.* 29607 (GBH, TEX).

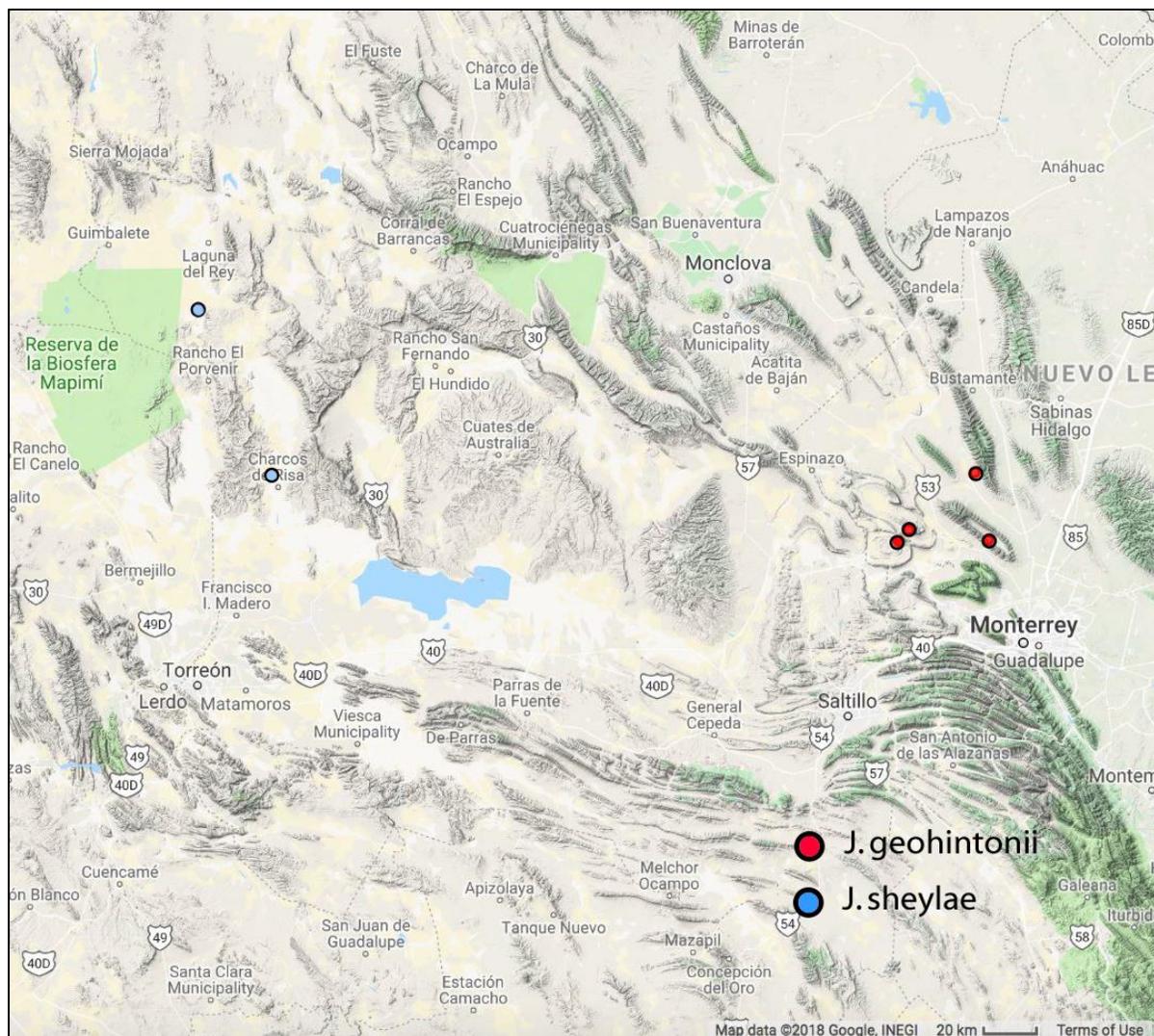


Figure 1. Distribution of *Johnstonella sheylae* and *J. geohintonii*. Modified from map in Simpson (2007 onwards).

Johnstonella gypsites is a third species narrowly endemic to gypsum substrate in northeastern Mexico. Its range is restricted to Mpio. Galeana, Nuevo León. The key below and following illustrations separate the three gypsum species.

1. Mericarps with smooth tubercles and distinct lateral ridges; Mpio. Galeana, Nuevo León
..... ***Johnstonella gypsites*** (I.M. Johnston) Hasenstab & Mabry
1. Mericarps with pointed tubercles, without lateral ridges; Nuevo León and Coahuila.
 2. Plants 8–12 cm high; mericarps 0.7–1 mm long; Mpio. Mina, Nuevo León
..... ***Johnstonella geohintonii*** (B.L. Turner) Simpson & Kelly
 2. Plants 14–21 cm high; mericarps 1.2–1.4 mm long; Mpios. Ocampo and Fco. I. Madero, Coahuila ***Johnstonella sheylae*** G.S. Hinton

LITERATURE CITED

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Figure 2. *Johnstonella sheylae* NNE of Charcos de Risa, Ocampo, Coahuila (the type locality). Photo by G.S. Hinton, 19 April 2015.



Figure 3. *Johnstonella sheylae*, isotype (GBH).

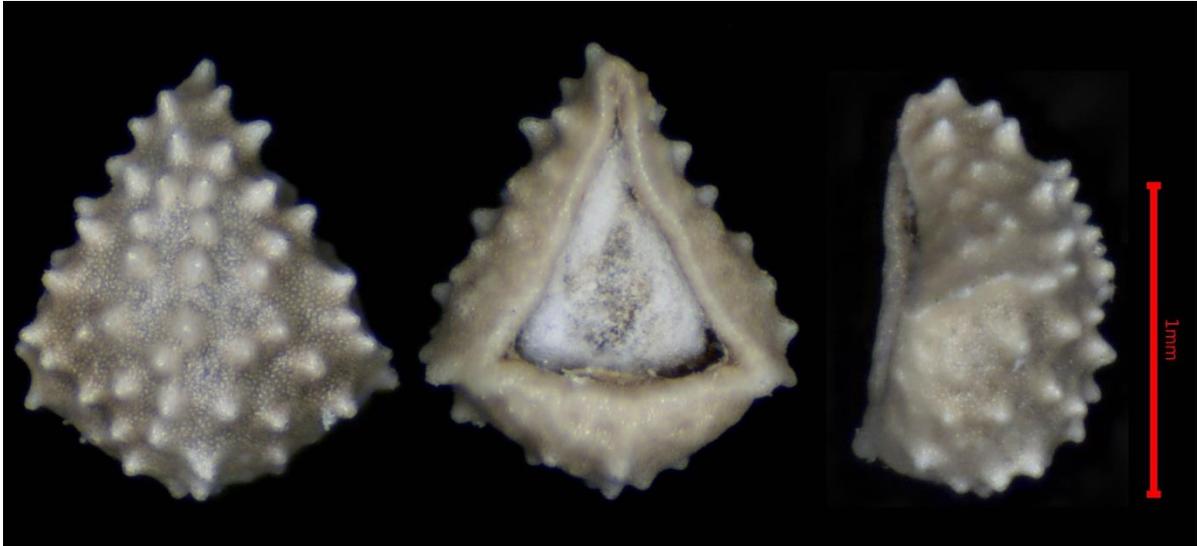


Figure 4. *Johnstonella sheylae* mericarps.



Figure 5. *Johnstonella* mericarps. (1) *J. geohintonii*; (2) *J. gypsites*; (3) *J. sheylae*.



Figure 6. *Johnstonella* mericarps, showing inner side with scar. (1) *J. geohintonii*; (2) *J. gypsites*; (3) *J. sheylae*.