

***PARTHENIUM ARGENTATUM* (ASTERACEAE)  
NATURALIZED IN SOUTHEASTERN ARIZONA**

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**ABSTRACT**

*Parthenium argentatum* A. Gray (guayule) is reported as naturalized in the Santa Rita mountains in southeastern Arizona. Populations occur on calcareous soils in several areas on the eastern, northern, and northwestern flanks of the northern Santa Rita mountains,. It is hypothesized that the plants have become established from seed dispersal from a guayule rubber plantation maintained by the Intercontinental Rubber Company beginning in 1916, roughly 25 kilometers (16 miles) southwest of the naturalized populations.

As part of an ongoing effort by the first author to update the flora of the northern Santa Rita mountains (McLaughlin & Bowers 1990), *Parthenium argentatum* was collected and observed at several localities, sometimes in extensive stands spanning several hundred meters (Figs. 1–3). *Parthenium argentatum* is native to the Chihuahuan Desert in Mexico — the closest localities apparently in eastern Chihuahua — and otherwise barely enters the USA in the Big Bend area of Texas (Lloyd 1911; SEINet 2022).



Figure 1. *Parthenium argentatum* in the northern Santa Rita mountains (Embrey 523). This population is essentially a monoculture of guayule (note extensive sotol and ocotillo in the background).

**Voucher specimen. Arizona.** Pima Co.: N end of the Santa Rita mountains, on calcareous soil, Chihuahuan Desert scrub with *Fouquieria splendens*, *Dasyllirion wheeleri*, *Calliandra eriophylla*, *Dalea formosa*, *Krameria lanceolata*; 31.9356, -110.7175; 1230 m, 22 Aug 2022, T. Embrey 523 (ARIZ) (USGS 1981).

This is the first report of *Parthenium argentatum* found naturalized in Arizona. A checklist for the northern Santa Rita mountains omitted this species (McLaughlin & Bowers 1990), while the Arizona Flora (Kearney et al. 1960) noted only that a guayule plantation existed south of Tucson. The Flora of the Sonoran Desert (Shreve & Wiggins 1964) mentioned the plantation and that the species is “escaped sparingly in the region,” but no localities or collections were cited.



Figure 2. *Parthenium argentatum* flowering on Aug. 22, 2022, in the northern Santa Rita mountains.

Although limestone soils (chiefly Tertiary) have been shown to host endemic and relictual plants in Arizona (Anderson 1996, 2011), the simplest explanation for the occurrence of *Parthenium argentatum* at this locality is by an establishment event from the nearby guayule plantation that was maintained by the Intercontinental Rubber Company beginning in 1916 (McGinnies 1979; Lamberton 2011). Located roughly 25 kilometers (16 miles) due southwest of the current location, the Continental Rubber Plantation was started to supply rubber domestically but ceased efforts after peace accords ended World War I. The presence and tolerance of these plants to this locale — as indicated by the sign of successful flowering and fruiting, recruitment, and lack of freeze damage — raises the question of why this species is not found naturally in southeastern Arizona, especially when other plants associated with the Chihuahuan desert do occur here e.g., *Flourensia cernua*, *Koeberlinia spinosa* (Strother 2006; Tucker 2010; SEINet 2022). Muller (1946) stated that the local distribution of guayule is “sporadic and entirely without apparent reason.”

The most outlying naturalized population found occurs near the historic Andrada Quarry, where Escabrosa Limestone is present (Ferguson et al. 2019). Plants of all sizes and ages are found at this locality, suggesting that this area was occupied not long after the establishment of the Continental Rubber Plantation. In his study on guayule root development, Muller (1946) noted that it was not uncommon to encounter 40-year-old guayule individuals.

Large naturalized populations occur elsewhere on the northwestern flanks of the northern Santa Rita mountains (*Embrey 502*, *Verrier 1283*) (Fig. 3). An additional locality (*Embrey 191*) occurs on the eastern slopes of the northern Santa Rita mountains, near Weigles Butte.

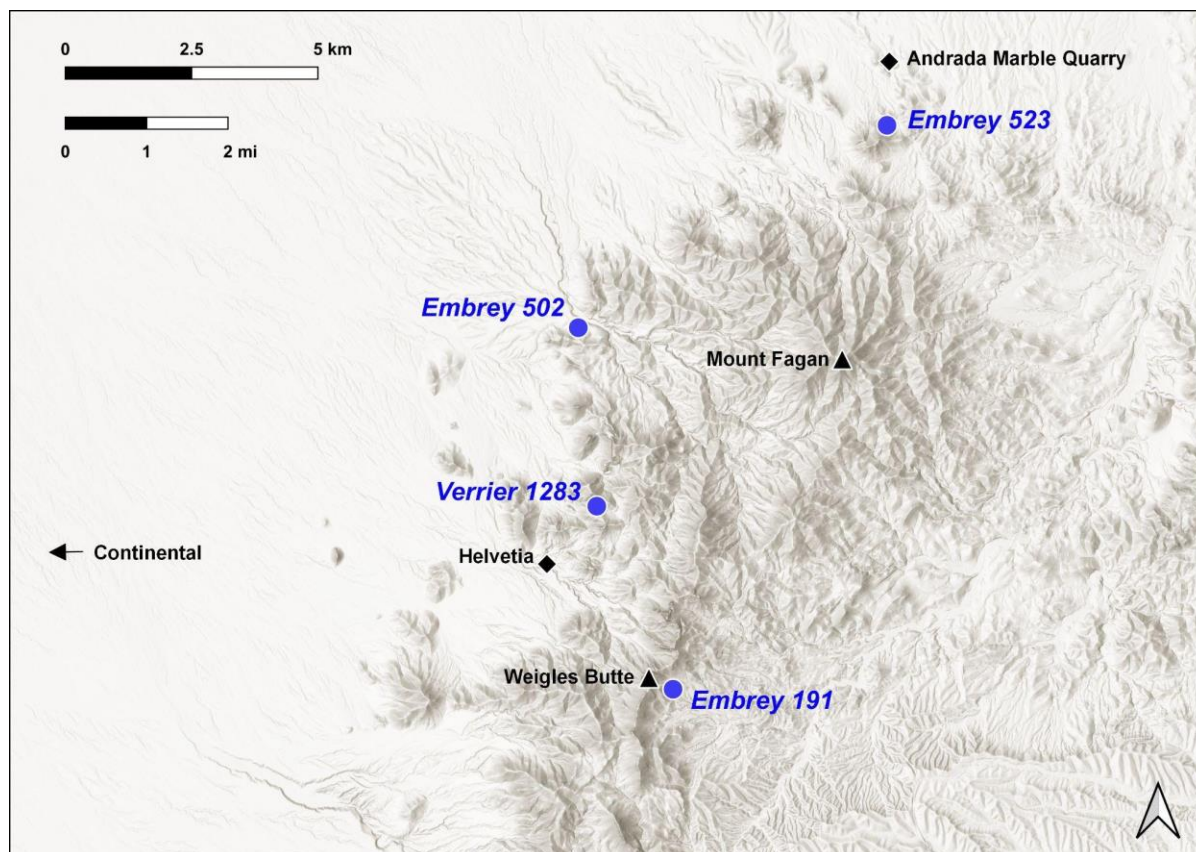


Figure 3. *Parthenium argentatum* — naturalized populations (blue dots) in the northern Santa Rita mountains, Pima Co., Arizona.

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