

A NEW POPULATION OF *CIRSIIUM WRIGHTII* (ASTERACEAE) DISCOVERED IN TEXAS

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ABSTRACT

A population of *Cirsium wrightii* A. Gray was recently discovered in Chinati Mountains of Presidio Co., Texas. Other occurrences in the state have been documented only by two collections — from Pecos County in 1849 and from Presidio County in 2003. The current range of the species is primarily in New Mexico and Texas, and it was recently federally listed as threatened in 2023 by U.S. Fish & Wildlife.

A population of *Cirsium wrightii* A. Gray (Wright's thistle) was documented on a private ranch on the southwest side of the Chinati Mountains of Presidio Co., Texas (Figure 1 and 2). The population comprises about 120 plants, which were flowering and fruiting in a perched cienega hillside and gully community (Figures 3, 4). This is the second extant population known in Texas — both sites are currently only known from Presidio County in the lower Big Bend area of the Trans Pecos Ecoregion (elevation 3500-4500 feet).

Cirsium wrightii is a wetland thistle that occurs in wet meadows associated with alkaline springs and seeps (cienegas). *Cirsium wrightii* was historically known to occur in Arizona and New Mexico in the United States, and Chihuahua and Sonora in Mexico (Sivinski 2012). *Cirsium wrightii* has been previously documented in Reeves Co., Texas, in 1849 by Charles Wright, and a small population of *C. wrightii* was discovered in 2003 in Presidio County by Jackie Poole (Nesom 2018). Singhurst relocated Poole's site in 2001 and documented a small population of 5 plants. *Cirsium wrightii* has recently been listed by U.S. Fish & Wildlife (2023) as threatened.

The recently discovered population of *Cirsium wrightii* (Figures 1, 2) is one of two extant populations of this globally rare plant in Texas. One collection of *C. wrightii* from Pecos Co., Texas, in 1849 was re-examined in 2018 and determined to be Wright's thistle (Nesom 2018). This population was documented by Charles Wright at Comanche Springs cienega in Fort Stockton, Texas. Unfortunately, Comanche Spring that used to feed this cienega site no longer flows. *Cirsium wrightii* is also known from eight populations in New Mexico and one population in Mexico. It also historically occurred in southeast Arizona.

Voucher. Texas. Presidio Co.: Chinati Mountains, Canyon of the Kings, perennially wet areas associated with sandstone and mudstone canyons, steep sloped cienega in narrow gully with multiple small waterfalls, 3080-3120 ft where the plants occur and 3040 at the base of the cliff, *Adiantum capillus-veneris*, *Eleocharis rostellata*, *Distichlis spicata*, *Muhlenbergia asperifolia*, *Schoenoplectus pungens*, *Solidago juliae*, *Sorghastrum nutans*, *Leucosyris blepharophylla*, *Leucosyris matturneri*, *Adiantum capillus-veneris*, rare perennial to 2 meters tall, florets white, 8 Dec 2021, Singhurst 22412 with J. Fort, B. Schwartz, B. Hutchins, K. Perez, K. Demere, and R. Connolly (BAYLU, TEX).



Figure 1. Wright's thistle with Dr. Ben Schwartz (Texas State University) in Presidio Co., Texas. 8 Dec 2021.



Figure 2. Wright's thistle in Presidio Co., Texas. 8 Dec 2021.

The newly discovered *Cirsium wrightii* population occurs in perennially wet areas associated with sandstone and mudstone gullies on the cliffs. These cienega wetlands begin from springs at the highest canyon drainages and then stairstep down through a series of waterfalls along shallow cuts (gullies) in the cliffs. Adjacent to these moist cuts with *C. wrightii* are steep slopes (10-45%) with perched, perennial seep moisture and diffused wetland benches associated with cliff faces and shaded, overhanging cliffs. The spring-fed perennial creeks leave the gully with gentle steps, often winding hundreds of meters towards broader arroyos where the moisture ultimately sinks into sand and silty materials.

The thistle occurs in the two middle waterfall shelves on seeping ledges and in the bottom of the shelves that accumulates water before it flows to the next shelf — growing there among *Eleocharis rostellata*, *Schoenoplectus pungens*, *Distichlis spicata*, *Muhlenbergia asperifolia*, and *Sorghastrum nutans*. It also occurs on seeping ledges on the canyon walls with *Adiantum capillus-veneris* and *Solidago juliae*.

This cienega vegetation (Figures 3, 4) is associated with perennial seeps and springs, as permanent, scarcely fluctuating sources of water. These cienegas occur in arid landscapes with high rates of evaporation, so the soils at the drying wetland margins usually have surface crusts of alkali or salts — deposited dissolved solids of evaporated or transpired soil solutions. The valleys where they occur are typically wide and gently sloping. Over characteristic sandstone and mudstone, the soil consists of layers of organic peats and fine-textured silts and can build to depths of 10-20 centimeters to a meter. The spongelike soil provides a base flow during drought periods.

Vegetation on the flats is composed of a mixture of perennial and annual forbs and graminoid species, which form a dense mat of growth. Perennial, semi-aquatic sedges and rushes are typically dominant. Some of the more constant and abundant cienega species include *Eleocharis rostellata*, *Distichlis spicata*, *Schoenoplectus pungens*, *Sorghastrum nutans*, *Leucosyris blepharophylla*, and *Leucosyris matturneri*. The latter two, *L. blepharophylla* and *L. matturneri*, are locally common at this cienega site. *Leucosyris blepharophylla* starts in the cliffside and follows the perennial stream and seeps until the water dries out, disappearing into the arroyo sands.



Figures 3 and 4. The cienega vegetation, with the rare species, occurs down the shallow cut in the cliff and in the flats below the cliff base. Photos by Singhurst, 8 Dec 2021.

Some of the more common grasses, sedges, and rushes include *Bothriochloa laguroides*, *Cenchrus myosuroides*, *Cyperus laevigatus*, *Echinochloa colona*, *Eleocharis montividentis*, *Fuirena simplex*, *Juncus mexicanus*, *Juncus torreyi*, *Muhlenbergia asperifolia*, *Muhlenbergia rigens*, *Polypogon monspeliensis*, *Schoenoplectus americanus*, *Sporobolus airoides*, *Sporobolus pyramidatus*, *Sporobolus texanus*, *Trichloris crinita*, and *Typha domingensis*. Forbs can be locally common and include such species as *Adiantum capillus-veneris*, *Anemopsis californica*, *Bahia absinthifolia*, *Boerhavia* spp., *Calibrachoa parviflora*, *Cirsium ochrocentrum*, *Cleomella longipes*, *Datura wrightii*, *Dasyochloa pulchella*, *Erigeron tracyi*, *Eriogonum rotundifolium*, *Eustoma exaltatum*, *Froelichia arizonica*, *Glandularia wrightii*, *Grindelia arizonica*, *Heliotropium curassavicum*, *Lepidium alyssoides* var. *angustifolium*, *Malvella leprosa*, *Nama hispidum*, *Nicotiana obtusifolia*, *Oenothera primiveris*, *Pectis angustifolia*, *Solidago juliae*, *Setaria leucopila*, *Sonchus oleraceus*, *Suaeda suffrutescens*, *Symphytotrichum divaricatum*, *Trianthema portulacastrum*, *Triglochin maritima*, *Xanthium strumarium*, and *Zeltnera arizonica*. Woody species occur occasionally within the herbaceous matrix — they include *Aloysia gratissima*, *Atriplex canescens*, *Baccharis salicifolia*, *Celtis ehrenbergiana*, *Gymnosperma glutinosum*, *Lycium texanum*, *Populus fremontii*, *Populus deltoides* subsp. *wislizeni*, *Prosopis glandulosa*, *Salix gooddingii*, and *Vitis arizonica*. Localized populations of the introduced and invasive *Cynodon dactylon* and *Tamarix chinensis* are also present.

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