



The Toughest Plant in Texas

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TERLINGUA CREEK CAT'S-EYE (*Crypantha crassipes*) is an endangered plant species found only in south Brewster County, Texas. With its bristly, hairy leaves, and silvery green appearance, it stands out against the creamy yellow limestone hills where it is found.

All known populations of this endangered species are located in what has been described as the harshest part of the Chihuahuan desert. This species continues to persist in a very narrow ecological range on privately owned land in southern Brewster County. Current attempts to locate this species in nearby Big Bend Ranch State Park and Big Bend National Park have not resulted in locating any new populations on public lands. Credible sources from both parks verify that this is the case.

The geologic area where Terlingua Creek Cat's-eye is located is a rock unit called the Fizzle Flat lentil with high occurrences of gypsum and barite, referred to by locals as a "moonscape." No records of Terlingua Creek Cat's-eye have occurred outside of

this substrate. This reduces the chance of a recovery, as plants with restricted distributions are the most vulnerable to habitat loss or degradation.

Plants range in size from 10-30 centimeters tall. The flowers form capitate clusters with white corolla lobes and a yellow opening at the throat. Terlingua Creek Cat's-eye has two distinct flower types. This characteristic usually requires that the species receive pollen from the opposite flower type in order for fertilization to occur. First blooms are noted in March, possibly providing an early nectar source for insects. Terlingua Creek Cat's-eye is capable of producing four nutlets with achene-like mericarps. Individual seed units are light and aerodynamic.

In the United States, a federally endangered species requires a written recovery plan.

The Borderland's Research Institute undertook a study, partnering with the Texas Parks and Wildlife Department (TPWD), U.S. Fish and Wildlife Service,

and private landowners, with the goal of collecting much needed information for recovery, as defined by TPWD. The privately owned areas that Terlingua Creek Cat's-eye inhabits have a sparse but interesting vegetation community that includes other rare plants. Protecting and assessing Terlingua Creek Cat's-eye habitat may benefit the recovery of a target species, but it also supports its associates with whom it may have evolved.

How Terlingua Creek Cat's-eye has evolved adaptations that allow it to survive in an area nearly devoid of vegetation is not completely understood. Through analysis of herbivory patterns and chemistry, our research found that Terlingua Creek Cat's-eye has a poisonous hepatotoxin, a pyrrolizidine alkaloid, in its leaves and roots that make it not only unpalatable, but deadly, if eaten by mammals. This may have conferred protection against herbivory. This adaptation may be related to a tolerance for a specific soil or substrate.

Through our research, we verified that



Terlingua Creek Cat's-eye grows in an area with a higher percentage of gypsum than in the adjacent soil areas. Terlingua Creek Cat's-eye's restricted distribution may be related to the gypsum present within its habitat but for more reasons than the gypsum provides chemically. Terlingua Creek Cat's-eye soil, considered sub-optimal for a variety of reasons, has soil characteristics that may have coevolved with this endemic species, providing the biological niche that it now inhabits.

Although the Endangered Species Act requires a recovery plan for the conservation of endangered plants, it does not require that owners of the property where the plants are located comply with recommendations or measures intended to protect it. The harsh, isolated Chihuahuan desert habitat of this endangered species confers protection through limited access and limited human desirability! Terlingua Creek Cat's-eye habitat is being mined and developed for bentonite in a relatively small portion of the habitat. At the same time, private property owners in Texas have collaborated to allow an assessment of previously unmapped or unknown populations, thus protecting the plants on a larger scale. They have built fences to protect this endangered species from off-the-road vehicles and have become citizen scientists helping to increase the level of awareness about the species. Without this level of commitment, the chances of a recovery for this species are considered low. By protecting what may be the toughest plant in Texas, landowner conservation allowed for more in-depth research of a variety of factors that may have contributed to Terlingua Creek Cat's-eye's successful adaptation to its particular niche. 🌱



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