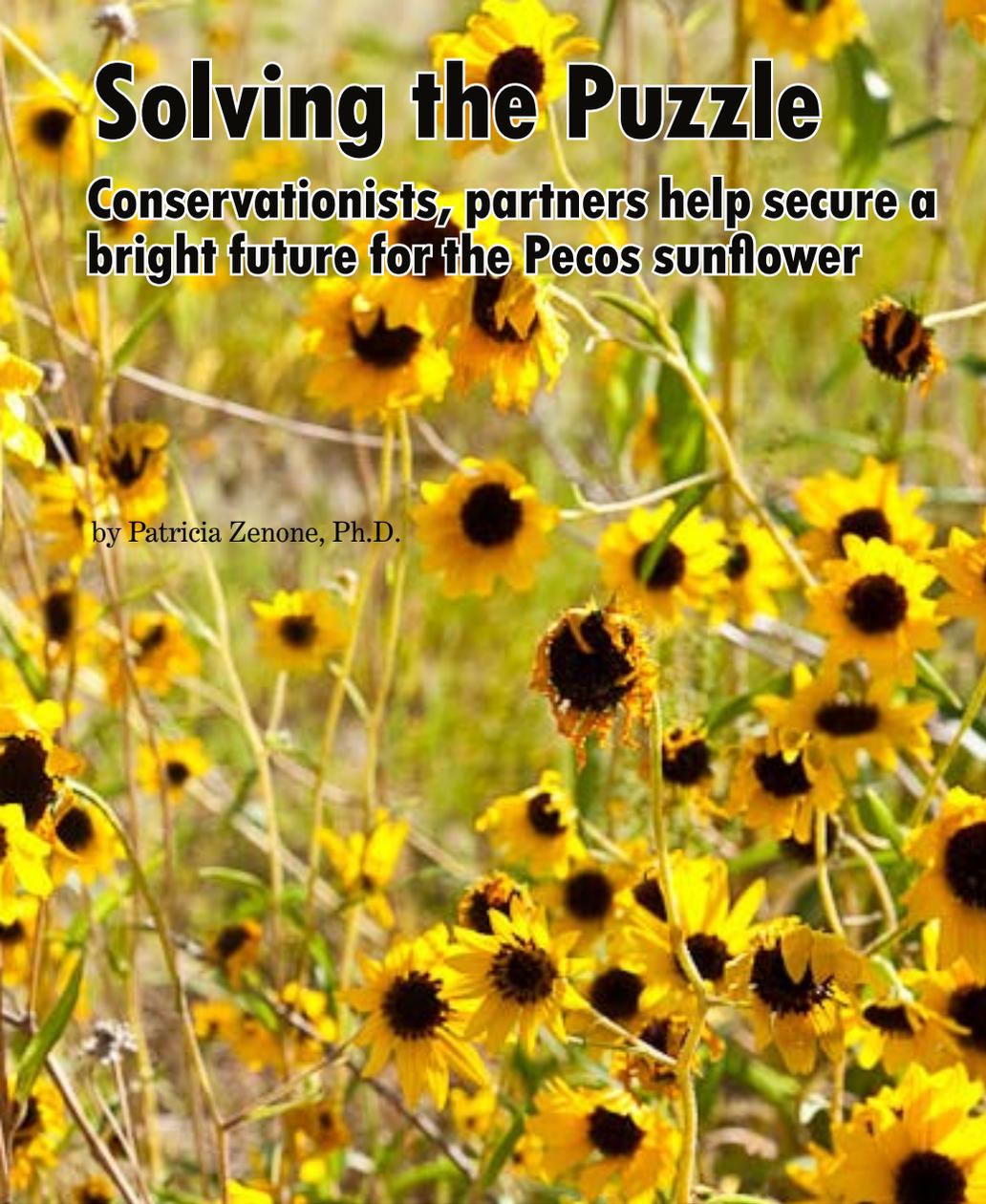


# Solving the Puzzle

## Conservationists, partners help secure a bright future for the Pecos sunflower

by Patricia Zenone, Ph.D.



Pecos sunflowers on Bitter Lake National Wildlife Refuge. Photo Credit: USFWS

In areas of New Mexico and west Texas, efforts by concerned citizens, Tribes, and private, State, and Federal agencies to recover the Pecos sunflower (*Helianthus paradoxus*) are paying off. The name paradoxus is fitting for this beautiful plant, which is also known as the puzzle sunflower because it has the paradoxical characteristics of blooming only in autumn and growing in salty water. The Pecos sunflower has been protected as threatened under the Endangered Species Act since 1999. It survives at approximately two dozen known locations in the desert wetlands

of New Mexico and west Texas. Populations vary from less than 100 to several hundred thousand individuals.

Recovery actions include finding and protecting habitat areas that are important for the long-term survival of the species, and continuing to study its life history, distribution, and habitat needs. Voluntary conservation actions of landowners and land managers are a high priority for this species' recovery because its future can be secured through habitat restoration and protection and maintaining important populations.

The Pecos sunflower grows only in saturated soils, like those found in desert wetlands called cienegas, so its habitat is very limited. The plant is vulnerable to groundwater depletions, diversions of surface water, the filling of wetlands for conversion to dry land, unmanaged livestock grazing, and competition with non-native invasive trees. Seed dispersal is also restricted by the distance from one wetland to another.

A number of dedicated partners support the U.S. Fish and Wildlife Service (Service) in the effort to recover the Pecos sunflower. In 2004, a large population of the sunflower was discovered at La Joya State Waterfowl Management Area near Socorro, New Mexico. The plants at this site are protected under a voluntary management plan developed cooperatively between the Service's New Mexico Ecological Services Field Office and the New Mexico Department of Game and Fish. Additionally, the State of New Mexico has acquired Blue Hole Cienega, an important Pecos sunflower site in Santa Rosa, New Mexico.

On other Tribal, private, and State and Federal lands in New Mexico and west Texas, cooperative management actions are continuing to result in either expansion of small populations or return of Pecos sunflowers where the species was eliminated. In addition to controlling livestock grazing and removing exotics like Russian olive and tamarisk, other beneficial actions include prescribed burns, increasing water availability, and reseeding areas that contain the habitat requirements for Pecos sunflowers. These actions have been conducted on lands managed by The Nature Conservancy in west Texas. In New Mexico, beneficial management has been implemented on the Pueblo of Laguna, on private property belonging to the Rhodes family in Socorro County, by the

Bureau of Land Management's Roswell Field Office, and by Bitter Lake National Wildlife Refuge. In many cases, these actions have resulted in explosive Pecos sunflower germination and survival.

On the Rhodes' private property near Socorro, funds from the Service were added to contributions from the Natural Resources Conservation Service, Save our Bosque Task Force, the New Mexico Forestry Division, and the New Mexico Department of Game and Fish to improve and restore habitats by treating and removing exotic vegetation and restoring native vegetation. Pecos sunflower seeds were collected from the La Joya population and planted on the Rhodes' private land, which is located along the Rio Grande in central New Mexico.

Thousands of Pecos sunflowers resulted in the planted area, and this appears to be an additional, new self-perpetuating population. The Pecos sunflower patches are becoming dense, and individuals are spreading to areas where they were not planted.

"Planting the threatened Pecos sunflower on our property was a great

decision for me and my sisters," says Doris Rhodes. "The sunflowers have thrived and demonstrate how private land can be used to successfully protect listed species with no problems for the landowner. We hope that our property will serve as an example for other private landowners who wish to make a conservation contribution by protecting wildlife and habitat for endangered species."

At Blue Hole Cienega in Santa Rosa, New Mexico, positive results were also documented over a very short time span. From December 2006 to September 2007, Forestry Division's Inmate Work Crews from Los Lunas, New Mexico, removed and treated with herbicide all the exotic invasive trees. The cienega was burned using prescribed fire in December 2007 by fire crews from the State Forestry Division, the U.S. Forest Service, and the City of Santa Rosa.

"Blue Hole Cienega is one of New Mexico's last intact natural wetland cienegas and hosts one of the largest extant populations of the Pecos sunflower," says Daniela Roth, current Botanist for the New Mexico Forestry Division. "After fencing, removing

cattle and invasive exotic trees, this 116-acre [46-hectare] preserve is now permanently protected for the Pecos sunflower and research and education on the values of rare wetland habitats."

According to Roth, this project demonstrates that State, Federal, and private partnerships can work to attain recovery goals for endangered species and protect rare habitats. With positive results such as these, as the Service continues to partner with many dedicated plant conservationists, the Pecos sunflower appears to be on its way to recovery throughout its range.

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**Left: Pecos sunflower reference site 2 before management actions at Blue Hole Cienega, September 2006.**

**Right: Pecos sunflower reference site after management actions at Blue Hole Cienega, September 2008.**

*Photo Credit: USFWS*

