Conserving Our Floristic Legacy

by Vivian Negrón-Ortiz

Winkler pincushion cactus (*Pediocactus winkleri*) is endemic to central Utah where it occurs in Emery and Wayne counties. It is associated with salt desert shrub communities on gravel or clay in the Dakota Formation, between 4,800 and 5,200ft. *Photo Credit: USFWS*

A remarkable display of native plants enhances the landscapes of our nation. These plants, which represent over 18,000 native species or nearly 5 percent of the estimated plants worldwide, range in size from minute arctic willows to ancient giant sequoias and are found in a wide range of environments from boreal forests, alpine tundra, and prairie grasslands to deserts, wetlands, and tropical forests. Many of these environments encompass high levels of plant species richness, endemism, taxonomic uniqueness, unusual ecological or evolutionary phenomena, and global rarity.

Plants are complex as they move, twist, and turn while searching for sunlight; and interact continuously with animals—warning off some with thorns, poison, and cryptic coloration; feeding others to help carry out their own reproduction; and engaging in various trickery and deception for their own survival and reproduction advantage. And they are, undoubtedly, essential to wildlife, and also to humans through delivery of invaluable ecosystem services including oxygen production, water purification, and climate control as well as food, shelter, fiber, and medicine.

Unfortunately, despite all these intricate dynamic processes and benefits, plants face considerable challenges at a global scale. Many plant species around the world are in decline.

Recent extinctions and declines in plant diversity are due to several factors, including loss of habitat to poor land management, spread of invasive alien species, and emergence of diseases. In the coming years, shifts in climate are projected to cause land-cover transformation. Some of these factors may lead to dramatic ecosystem-level changes, reducing the capacity of an ecosystem to tolerate disturbances.

Loss of a few plant species can cause a cascade of extinction, as suggested by a U.S. Forest Service fact sheet: "The extinction of even a single plant species may result in the disappearance of up to 30 other species of plants and wildlife." Without focused conservation attention to the growing risk of plant species, we are at risk of losing significant portions of our native legacy.

The Endangered Species Act (ESA) is considered the most significant and influential U.S. statute providing protection for species and habitats at risk. The ultimate goal of the ESA is to prevent the extinction of plant and animal life in danger or jeopardy, and to make the species appropriately secure to the point that they no longer need the protection of the ESA. Under the ESA, there are 1,434 species listed as threatened or endangered in the United States. Fifty-seven percent of these are plants; but this list represents less than one third of the taxa identified as imperiled (five or fewer populations or 20 or fewer populations).

Though significant progress has been made in conserving the nation's imperiled flora, we face continuing challenges. With ongoing threats, it is likely that many plants will decline, increasing the need for protection. Future recovery of imperiled plant species will require more botanical expertise; increased financial support for plant conservation; and better communication, education, and awareness about the importance of plant diversity.

This edition of the Endangered Species Bulletin highlights progress in the recovery of these species. The stories on the rare plant species within Colorado and Utah, and the slender rushpea (*Hoffmannseggia tenella*), a perennial herb close to extinction in Texas, exemplify that multiple organizations, land managers, and experts in a wide-range of fields are successfully engaged in recovering many of our species. The article highlighting re- and new- discoveries of populations of plant species thought extinct illustrate that botanical gardens, such as the National Tropical Botanical Garden in Kauai, are key partners for promoting plant conservation. The article "Blueprint for Survival" illustrates that plant species have a hidden genetic story that can be discovered and used to guide efforts toward recovery. In general, these articles emphasize that conservation success depends on working effectively with people; and that recovery is proactive, flexible, and creative in nature.

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The recent discovery of a new population of *Hibiscus clayi*, the rarest red flowered hibiscus in Hawaii, has opened up the possibility of maintaining the species. *Photo Credit: USFWS*